3-1040-257-14

TM 3-1040-257-14

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND

GENERAL SUPPORT MAINTENANCE MANUAL

FLAMETHROWER, PORTABLE, M9A1-7

FSN 1040-089-5034

This copy is a reprint which includes current pages from Changes 1 and 2.

HEADQUARTERS, DEPARTMENT OF THE ARMY

JUNE 1973

D 101.11:

WARNINGS

Gasoline and air under pressure are used in the operation of this equipment.

DEATH

or severe injury may result if personnel fail to observe warnings.

Ignition cylinders contain incendiary material. Handle them with extreme care.

Keep the gun pointed away from friendly personnel at all times. Never face the front of the gun.

The gun nozzle shield is very hot after firing.

Do not use the hose if the 5-year storage life or the 2-year service life is exhausted.

Release the air in the pressure system before attempting any maintenance or modification to the pressure system.

CHANGE
No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *9 May 1977*

Operator's Organizational, Direct Support, and General Support Maintenance Manual
FLAMETHROWER, PORTABLE, M9A1-7
(NSN 1040-00-089-5034)

Current as of 13 January 1977

TM 3-1040-257-14, 29 June 1973, is changed as follows:

1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the page.

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1-5 and 1-6	1-5 and 1-6
1-7 and 1-8	1-7 and 1-8
2-3 and 2-4	2-3 and 2-4
4-1 and 4-2	4-1 and 4-2
4-3 and 4-4	4-3 and 4-4
4-7 and 4-8	4-7 and 4-8
4-9 and 4-10	4-9 and 4-10
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5-13	5-13 (Reverse blank)
B-1	B-1 and B-2
C-3 through C-5	C-3 (Reverse blank)

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FLAMETHROWER, PORTABLE, M9A1-7
NSN 1040-00-089-5034

You can help improve this manual by calling attention to errors and by recommending improvements and by stating your reasons for the recommendations. Your letter or DA Form 2028-2 (TEST), Recommended Changes to Equipment Technical Manuals, should be mailed direct to Commander, Edgewood Arsenal, Attn: SAREA-DE-ET, Aberdeen Proving Ground, MD 21010. A reply will be furnished direct to you. For your convenience, preaddressed DA Forms 2028-2 (TEST) are included as final pages of this manual.

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*This manual supersedes TM 3-1040-257-12, 23 August 1968 and TM 3-1040-257-34, 6 September 1968, including all changes.

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

These instructions are for use by the operator, organizational, direct support, and general support maintenance personnel. They apply to the Flamethrower, Portable, M9A1-7.

1-2. Record and Report Forms

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750.

Section II. DESCRIPTION AND DATA

1-3. Description

The M9A1-7 flamethrower (fig. 1-1) is a device for projecting a flaming rod of thickened gasoline (fuel) to produce casualties and destroy materiel. The 9A1-7 flamethrower is an individual assault weapon. It is used primarily in close combat as an antipersonnel weapon. Accompanying the M9A1-7 flamethrower are two replacement air pressure spheres.

1-4. Gun

The gun consists of a valve section and ignition section.

a. Valve Section. The valve section includes the valve safety lever (3, fig. 1-3) and valve lever (4). An inner barrel and nozzle extend into the ignition section.

b. Ignition Section. The ignition section includes the ignition safety lever (5), ignition lever (7), nozzle shield (6), and ignition cylinder (para 1-8). A shield latch (fig. 1-4) locks the removable nozzle shield (6, fig. 1-3) in place. The two adjustment screws (8) permit the operator to rotate the ignition section for a more comfortable firing position.

1-5. Hose

The fabric-covered hose (2, fig. 1-3) has a threaded coupling (10) at one end and a quick-disconnect coupling half (1) at the other end. The threaded coupling (10) is connected to the gun's valve section. The quick-disconnect coupling half (1) is connected to the fuel tank's outlet coupling.

1-6. Tanks

The tank (fig. 1-5) consists of an air pressure section, fuel tanks, and a frame and back pad.

a. Pressure Section. The air pressure section consists of the following major components:

(1) *High-pressure sphere assembly.* The steel high-pressure sphere (14) contains the pressurized air that is used to disperse fuel from the fuel tanks (5 and 8) (*b* below). A valve (6, fig. 1-6) is screwed into the sphere. A plug assembly (8) contains a disk that will rupture when the air pressure in the sphere exceeds 2,300 psi. The knob (7) opens and closes the valve that contols the flow of pressurized air in the sphere. The adapter (5) is both a connection for the pressure hose assembly and an opening for pressurizing the sphere with air. The retaining ring (3, fig. 1-6) secures the sphere assembly to the bottom of the short fuel tank (8, fig. 1-5). A red triangle is painted on the sphere near the retaining ring (3, fig. 1-6). The triangle is used to aline the sphere during installation.

(2) *Pressure regulator and hose assemblies.* A quick-disconnect coupling half (11, fig. 1-5) on one end of the hose assembly is connected to the sphere adapter (5, fig. 1-6). The other end of the hose is connected to the inlet end of the pressure regulator (2, fig. 1-5). Two hose clamps hold the pressure regulator in place. The pressure regulator (2) reduces pressurized air coming from the sphere assembly to 300± 15 psi.

(3) *Manifold and hose assemblies.* A mainfold is connected to the outlet side of the pressure regulator (2). One end of each hose assembly (3) is connected to the manifold. The quick-disconnect coupling half on

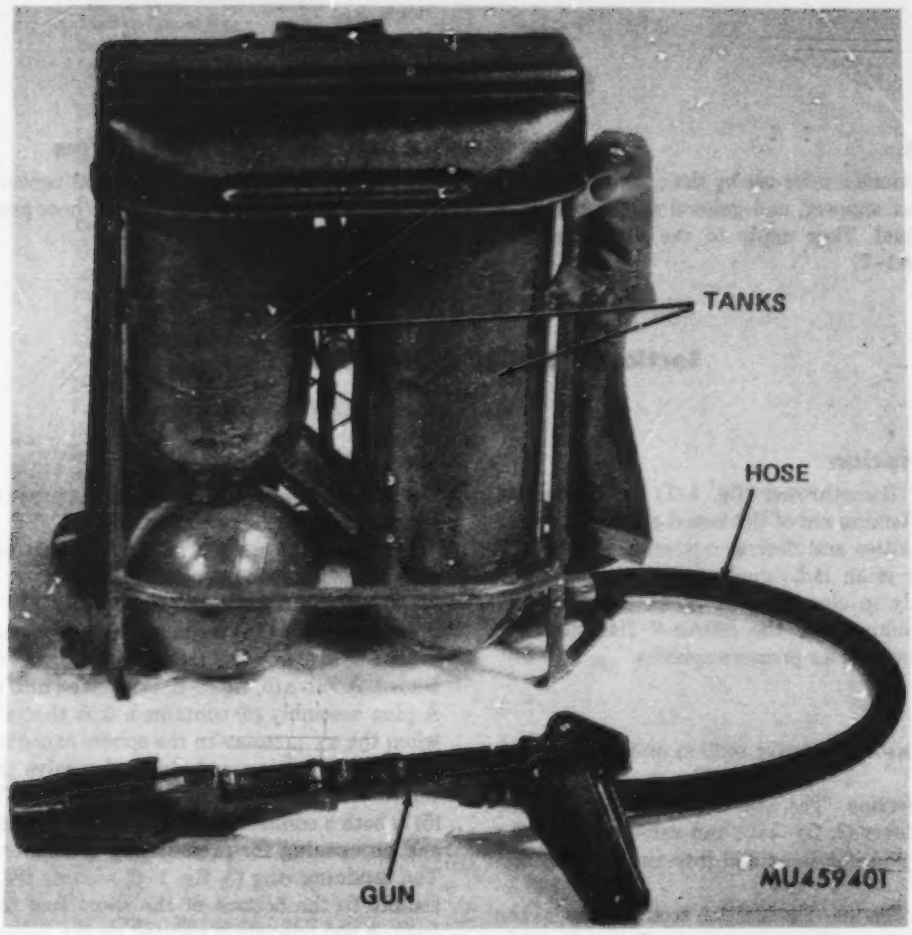


Figure 1-1. M9A1-7 portable flamethrower.

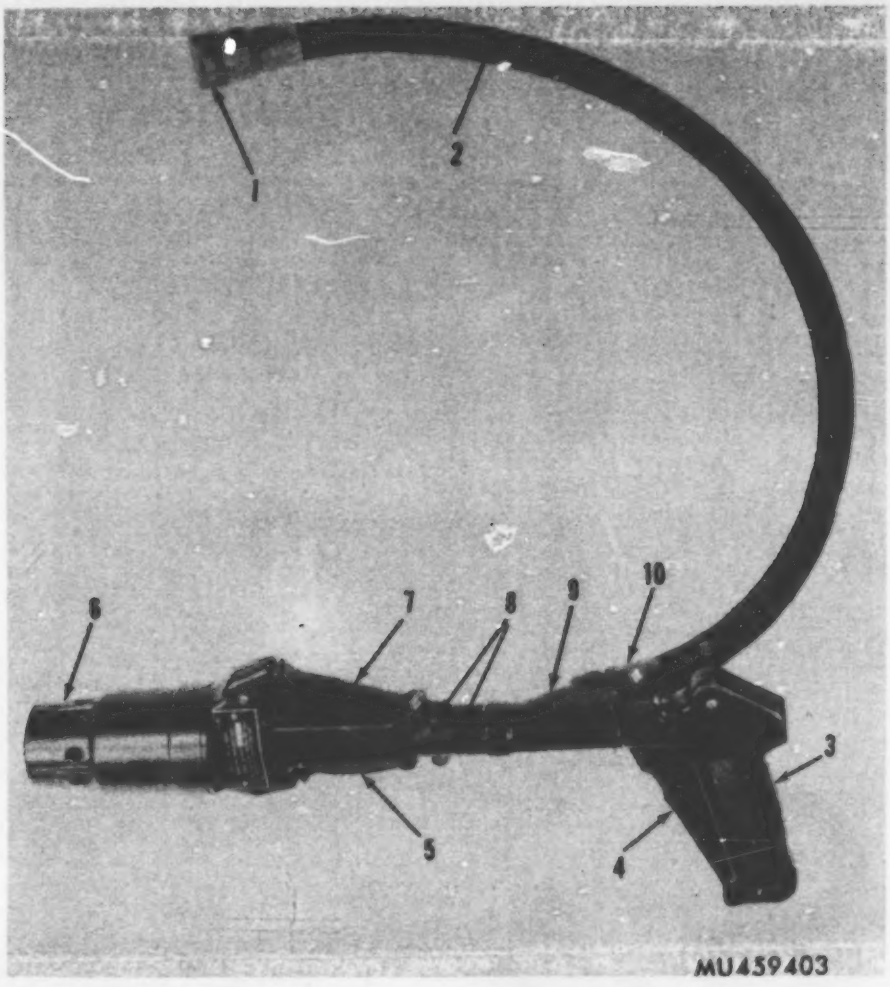
the other end of each hose assembly is connected to the swivel (6, fig. 1-7) on the filler cap assembly. Pressurized air from the pressure regulator passes through the manifold, both hose assemblies, and into each fuel tank.

(4) *Rupture disk assembly.* A rupture disk assembly (10) is connected to one end of the manifold (9). The disk will rupture when air pressure from the pressure regulator exceeds 400 to 430 psi.

b. Fuel Tank Section. The fuel tank section consists of the following major components.

(1) *Filler cap.* A filler cap (2) is screwed into the top of each fuel tank (8). A hose assembly (4) containing a quick-disconnect coupling half (5) is connected to each of the filler caps (2). Pressurized air passes from the manifold.

Figure 1-2. Sphere carrier (deleted).



1 Quick-disconnect coupling half
2 Hose
3 Valve safety lever
4 Valve lever
5 Ignition safety lever
6 Nozzle shield
7 Ignition lever
8 Screws
9 Inlet body
10 Coupling

Figure 1-3. Gun and hose

(9), through the hose assemblies (4) and filler cap (2) and into the fuel tank (8).

(2) *Fuel tank assembly.* The fuel tank assembly (8) consists of a long and a short fuel tank. The tanks are welded together by a tank connector, so fuel can flow from the short tank into the long tank. Both tanks are bolted to the frame (1) for additional support. The bottom of the short fuel tank is designed to support the high-pressure sphere (14) (para 1-6a(1)).

(3) *Pressure cap.* A removable quick-disconnect pressure cap (13) is located at the outlet end of the fuel tank. The cap covers the end of the coupling when the hose assembly is disconnected from the fuel tank. A drain cock (12) in the pressure cap is used to bleed pressure from the fuel tanks. When the cap is removed, it is stowed on the dust cap (11).

c. Tank Frame Assembly. The tank frame assembly consists of the following major components:

(1) *Protective cover.* The protective cover (3) closed when the equipment is being carried or used, t prevent entanglement with overhanging limbs or underbrush.

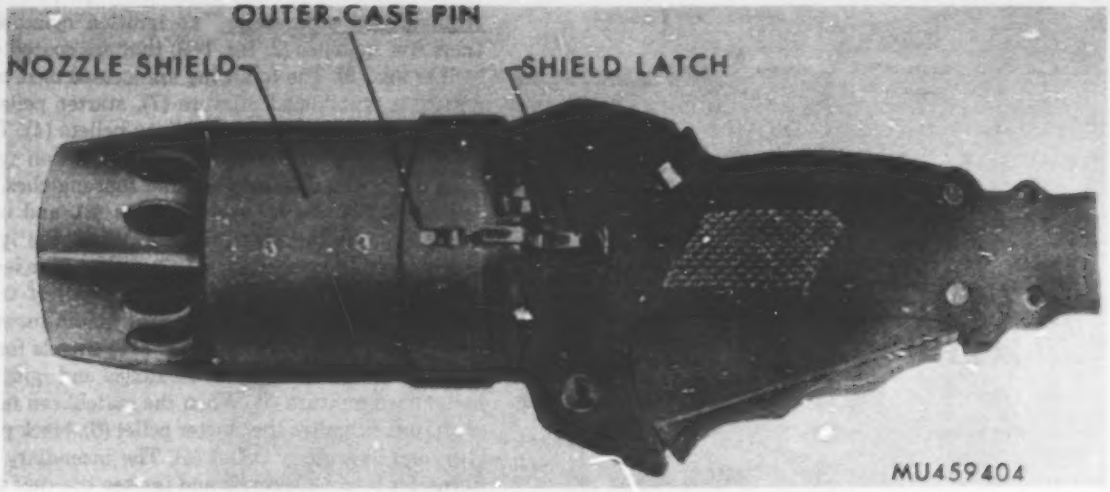
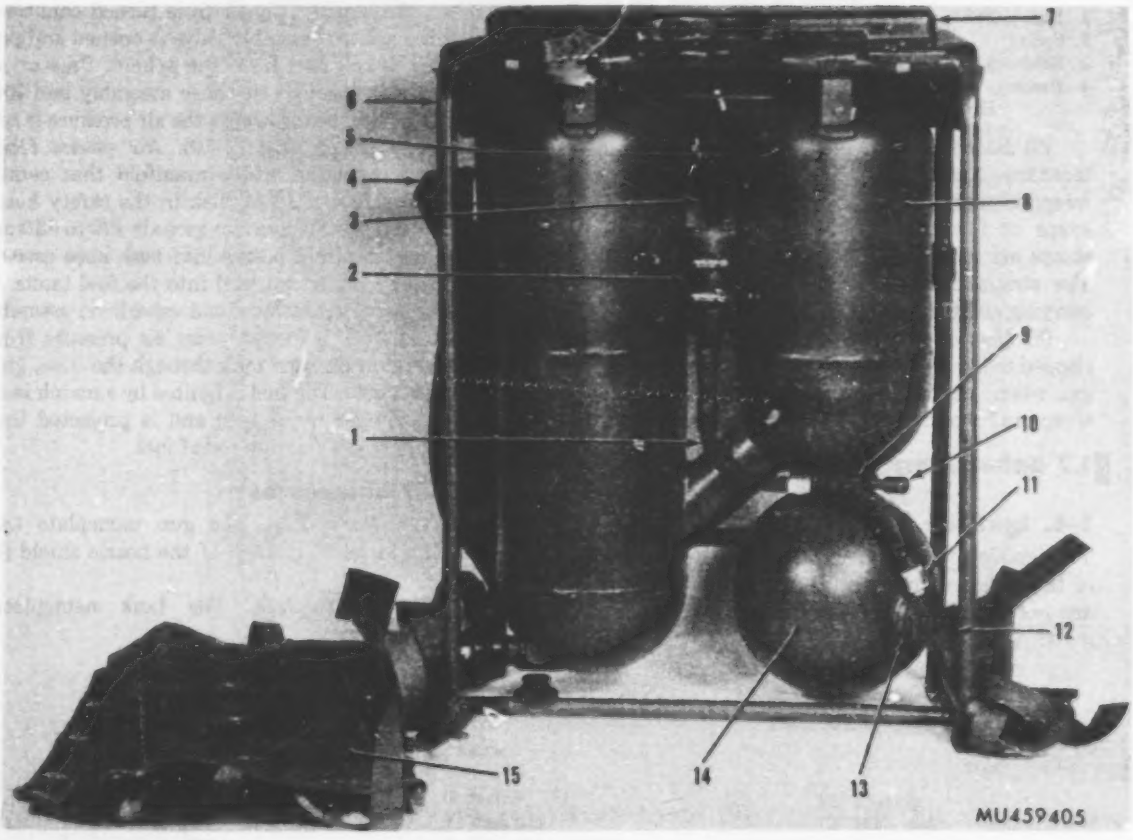
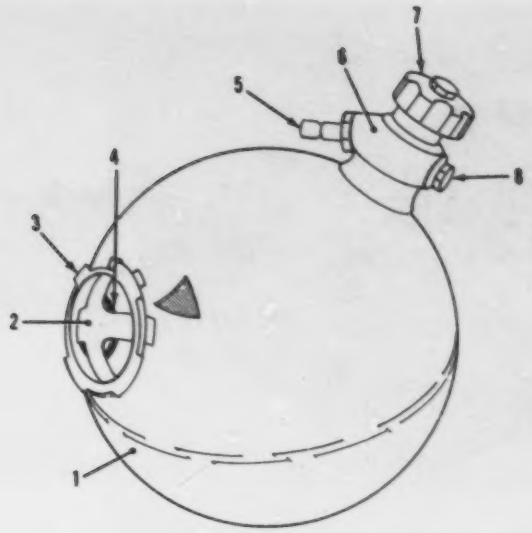


Figure 1-4. Nozzle shield—installed.



1 Hose assembly
2 Pressure regulator
3 Hose assembly
4 Holster
5 Fuel tank
6 Frame assembly
7 Cover
8 Fuel tank
9 Retaining ring
10 Catch assembly
11 Quick-disconnect coupling half
12 Knob
13 Valve
14 High-pressure sphere
15 Back pad

Figure 1-5. Tank and frame (front).



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1 High-pressure sphere
2 Spring
3 Retaining ring
4 Bushing
5 Adapter
6 Valve
7 Knob
8 Plug assembly

Figure 1-6. High-pressure sphere assembly.

(2) *Back pad assembly.* Two back pads (7) are laced together by a cord. The sides of the back pads are wrapped around the frame (1) and are held in place by snaps or fasteners. The shoulder straps and waist straps are attached to one end of the tubular frame. The straps fasten around the operator for ease of carrying and firing the flamethrower.

(3) *Holster.* The holster (4, fig. 1-5) which is clipped to the frame (6), is used to stow and protect the gun when it is not in use. A hook on the left shoulder strap can be used to suspend the gun when not in use.

1.7 Sphere carrier (deleted)

1-8. Ignition Cylinders

Two ignition cylinders (fig. 1-9) are packed in each can of the sphere carrier (fig. 1-8). The ignition cylinders are not supplied with this equipment; but must be requisitioned separately. The ignition cylinder contains five matches (2, fig. 1-9) that are coated with striker mix (9). The following are located next to each match: a matchhead mixture (7), starter pellets (6), black powder (10), and incendiary pellets (4). The incendiary pellets are separated in the ignition cylinder body to prevent igniting the other four matches. Lead-foil seals (5), plastic closure plates (8), and cement waterproof the ignition cylinder. When the ignition safety lever assembly (5, fig. 1-3) and ignition lever assembly (7) are squeezed, the ignition pin of the gun moves forward and forces the next match forward to be ignited. As the match (2, fig. 1-9) travels forward, its abrasive striker mix (9) scratches and ignites the matchhead mixture (7). When the matchhead mixture is ignited, it ignites the starter pellet (6), black powder (10), and incendiary pellet (4). The incendiary pellet burns for 8 to 12 seconds and ignites the fuel as it is discharged from the gun nozzle.

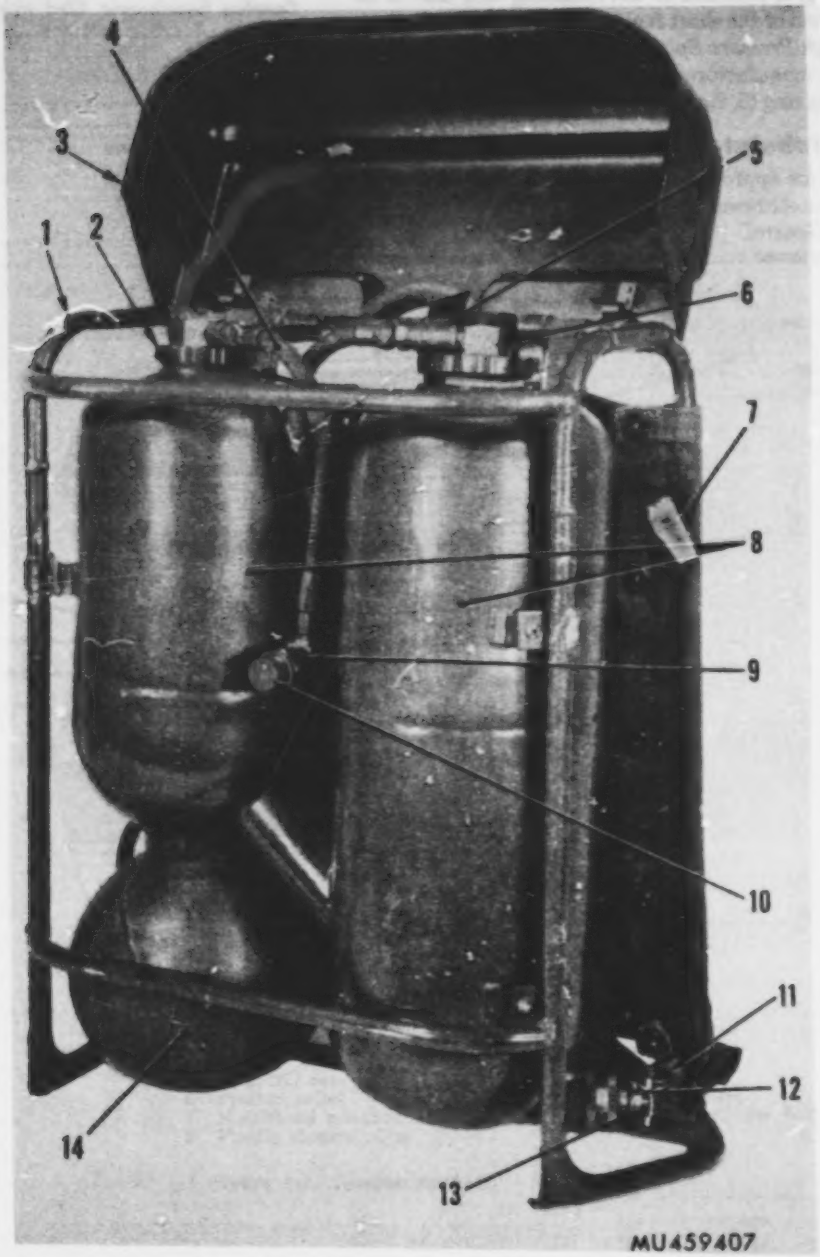
1-9. Functioning

When the knob (7, fig. 1-6) is turned counter-clockwise the sphere assembly valve is opened and pressurized air is released from the sphere. Pressurized air then passes through the hose assembly and into the pressure regularator, where the air pressure is reduced to 300 ±15 psi (fig. 1-10). Air passes from the pressure regulator into a manifold that contains a pressure safety head. A disk in the safety head ruptures when the air pressure exceeds 400 to 430 psi. Air from the manifold passes into both hose assemblies, through the filler cap, and into the fuel tanks. When the gun valve safety lever and valve lever assembly are squeezed, fuel is forced under air pressure from the outlet end of the fuel tank through the hose, gun barrel, and nozzle. The fuel is ignited by a match in the ignition cylinder (para 1-8) and is projected into the atmosphere as a flaming rod of fuel.

1-10. Nameplates

a. Gun Nameplate. The gun nameplate (A, fig. 1-11) is fastened in back of the nozzle shield (6, fig. 1-3).

b. Tank Nameplate. The tank nameplate (B,



1 Frame
2 Filler cap
3 Protective cover
4 Hose assembly
5 Quick-disconnect coupling half
6 Swivel
7 Back pad
8 Fuel tank assembly
9 Manifold
10 Rupture disk assembly
11 Dust cap
12 Drain cock
13 Pressure cap
14 High-pressure sphere

Figure 1-7. Tank and frame (rear).

Figure 1-8. Sphere carrier (deleted).

fig. 1-11) is fastened to the retaining ring that is on the bottom of the short fuel tank.

c. High-Pressure Sphere Assembly. The serial number and manufacturer's name are die-stamped on the retaining ring (3, fig. 1-8) of the high-pressure sphere.

1-11. Tabulated Data

All data are approximate.

a. Flamethrower

(1) *General.*

Range (maximum)	45 to 55 meters (thickened fuel) 20 to 25 meters (unthickened fuel)
Duration of fire	5 to 8 sec.
Type of fire	bursts or continuous
Fuel capacity	4 gal.
Type of fuel	thickened fuel or unthickened fuel

(2) *Weight*

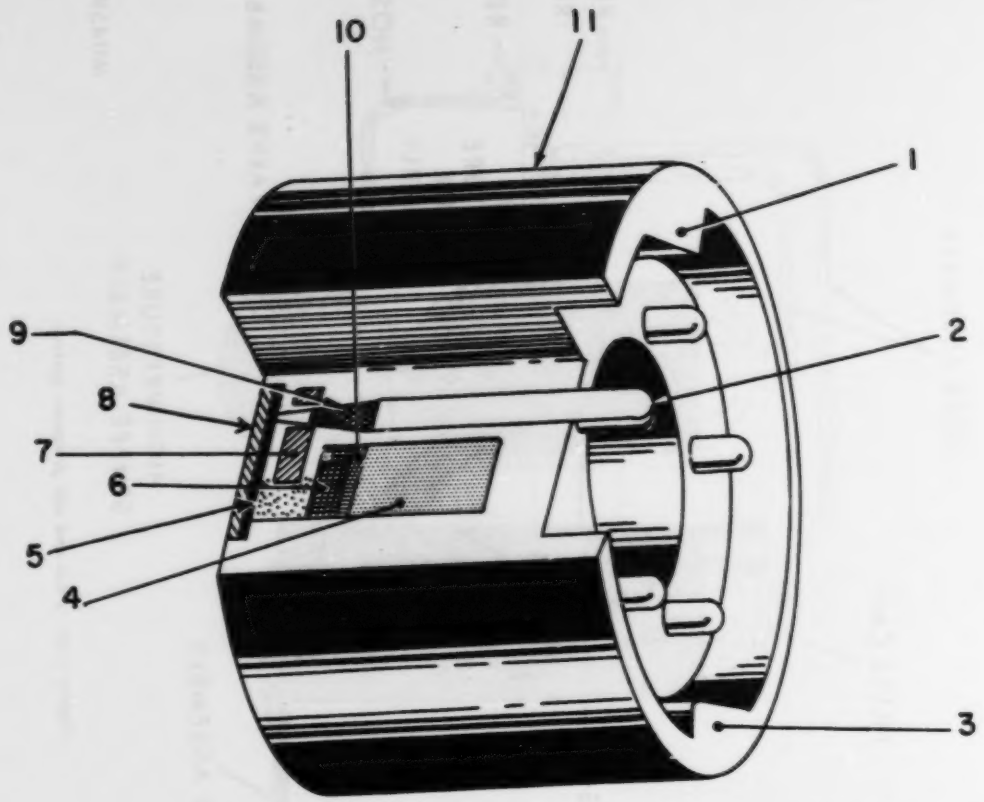
Complete flamethrower, empty	25 lb
Complete flamethrower, filled with fuel	50 lb
Tanks, empty	18¾ lb
Gun	4⅛ lb
Hose	1¾ lb
Fuel (4 gal.)	25 lb

(3) *Dimensions*

Gun length	21 in.
Fuel-hose length	37⅛ in.
Tanks:	
Height	23⅛ in.
Width	20 in.
Depth	9 in.

(4) *Pressure.*

High-pressure sphere	1,700 to 2,100 psi
Fuel tank	285 to 315 psi



1 Stop
2 Match
3 Stop
4 Incendiary pellet
5 Lead-foil seal
6 Starter pellet
7 Matchhead mixture
8 Plastic closure plate
9 Striker mix
10 Black powder
11 Ignition cylinder body

Figure 1-9. Ignition cylinder.

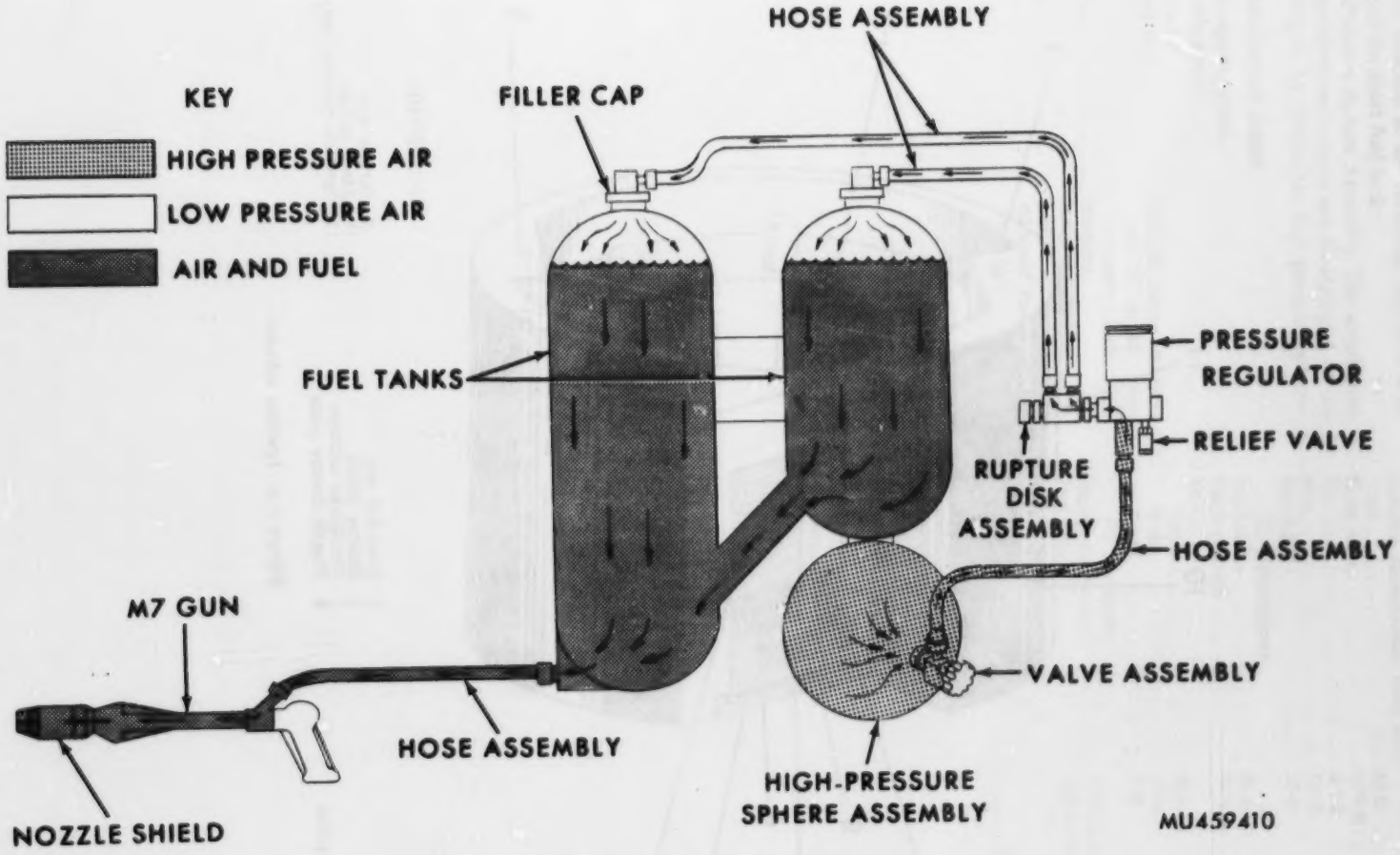
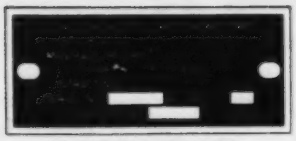
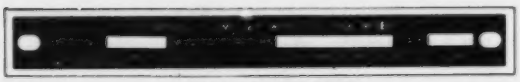


Figure 1-10. Fuel and air pressure system.



A. GUN NAMEPLATE



B. TANK NAMEPLATE

MU459411

Figure 1-11. Nameplates.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. CONTROLS

2–1. Valve Assembly Knob

The knob (12, fig. 1–5) on the valve assembly is located on the left side of the gunner when the flamethrower is being carried on his back. The knob opens and closes the valve that regulates the flow of pressurized air in the sphere. Turning the knob clockwise closes the valve; turning the knob counterclockwise opens the valve.

2–2. Valve Safety Lever

The valve safety lever (3, fig. 1–3) is located in back of the valve lever (4). It locks the valve lever and prevents accidental release of fuel. The valve safety lever must be first depressed by the palm of the hand, before the valve lever can be operated to release fuel.

2–3. Valve Lever

The valve lever (4, fig. 1–3) is located in front of the valve safety lever (3). The valve lever controls the flow of fuel. To release fuel from the gun, press the valve safety lever (3) and then press the valve lever (4).

2–4. Ignition Safety Lever

The ignition safety lever (5, fig. 1–3) is located on the side of the ignition grip. It locks the ignition lever (7) and prevents the matches from igniting accidentially in the ignition cylinder (para 1–8).

2–5. Ignition Lever

The ignition lever (7, fig. 1–3) is located on the opposite side of the ignition safety lever (5). The ignition lever ignites each match individually as required. Before the ignition lever can be depressed, the ignition safety lever must be depressed.

2–6. Pressure Cap

The pressure cap (13, fig. 1–7) is located at the outlet end of the long fuel tank. The pressure cap is used as a seal for the outer end of the fuel tank when the hose assembly is disconnected from the fuel tank. A drain cock (12) in the pressure cap is used to vent pressurized air in the fuel tank.

Section II. OPERATION UNDER USUAL CONDITIONS

2–7. General

The trained gunner (FM 20–33) receives the flamethrower with the fuel tanks filled and the sphere pressurized. He also receives an ignition cylinder. The gun and the hose are connected. The hose is usually connected to the tank (fig. 2–1).

2–8. Preparing Flamethrower for Use

The operator must perform the following operations before the flamethrower is used:

a. Close the valve by turning the knob (12, fig. 1–5) clockwise.

b. Squeeze first the ignition safety lever (5, fig. 1–3) and then the ignition lever (7) and check for ease of operation.

c. Squeeze first the valve safety lever (3) and the valve lever (4) and check for ease of operation.

2–9. Carrying Instructions

a. Tanks.

(1) Position the tanks on the gunner's back.

(2) Slide the buckles on the shoulder and waist straps to provide a comfortable fit.

NOTE

The tanks should rest securely against the small of the gunner's back.

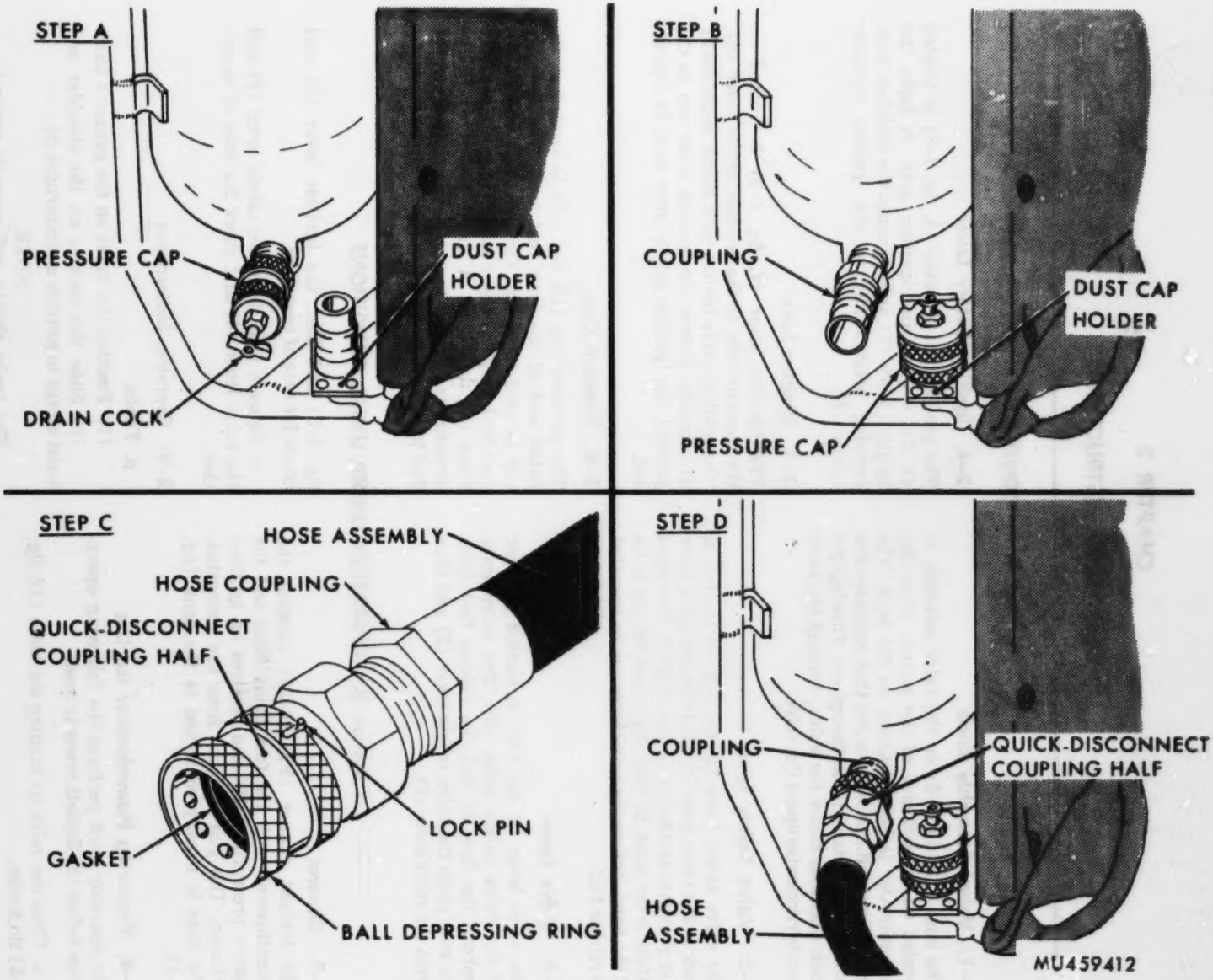


Figure 2-1. Connecting hose to tank.

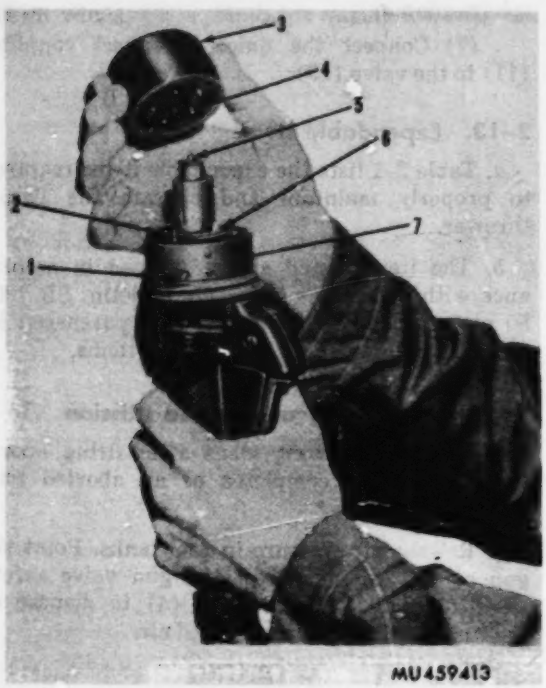
b. Gun and Hose. The gun is carried with the hose at the gunner's right side. The gunner's right hand holds the valve safety lever and the valve lever. The left hand holds the ignition safety lever and the ignition lever.

c. High pressure spheres. Two additional high pressure spheres may be requisitioned through regular channels, if needed.

2-10. Installing Ignition Cylinder

WARNING

Ignition cylinders contain incendiary material. Handle them with extreme care.



1 Outer pin
2 Inner pin
3 Ignition cylinder
4 Match
5 Needle valve
6 Lug
7 Spring case assembly

Figure 2-2. Installing ignition cylinder.

a. Depress the nozzle shield latch (fig. 1-4) and unscrew the nozzle shield.

b. Place the ignition cylinder (3, fig. 2-2) on top of the spring case assembly (7).

c. Place the nozzle shield (fig. 1-4) over the ignition cylinder and engage the outer case pin in the nozzle shield slot.

Table 2-1. Expendable Items

Item No.	Nomenclature	FSN
1	M1 Ignition Cylinder	1375-219-8583
2	M4 Thickener	1365-926-4076
3	Paint Brush	8020-597-5301
4	Paint Olive Drab (X34087)	8010-297-0560
5	Dry-Cleaning Solvent	6850-264-9039
6	Zinc Chromate Primer	8010-292-1127
7	Antiseize Compound	8030-209-8005
8	Masking Tape (¾ in.)	7510-290-2024
9	Paint Red (31136)	8010-297-2114

NOTE

The following operation winds the spring and prepares for igniting each match in the ignition cylinder.

d. Screw the nozzle shield in place. Back off the nozzle shield until the shield latch is engaged by the notch in the nozzle shield.

2-11. Firing Procedures

a. General. Using personnel must receive specific training (FM 20-33) and be qualified before attempting to fire the M9A1-7 flamethrower. The officer in charge will be responsible for enforcing the regulations, safety, and training of using personnel.

b. Safety. Using personnel must be familiar with the equipment and safety precautions specified in TM 3-366.

c. Firing Position. The M9A1-7 flamethrower can be fired by the gunner (FM 20-33) from a standing, kneeling, or prone position.

NOTE

To effectively disperse the fuel from the fuel tanks, the tops of the fuel tanks must be elevated hthan the bottom or outlet end of the fuel tank.

d. Holding the Gun. Grasp the valve grip with the right hand, place the palm of the hand on the valve safety lever and curl the fingers around the valve lever. Grasp the ignition grip with the left hand. Place the palm of the hand on the ignition safety lever and curl the fingers around the ignition lever.

e. Aiming.

WARNING

Keep the gun pointed away from friendly personnel at all times. Never face the front of the gun.

There are no sights on the gun. Aim the gun in the direction of the target where flame is required. Avoid operating the flamethrower into a strong wind if possible. Adjust for drift of the flaming rod if operating in strong cross winds.

f. Firing. The flamethrower can be fired in one continuous burst that will last for approximately 6 seconds. It also can be fired in short bursts. To fire the flamethrower, proceed as follows:

(1) Hold the gun by the inlet body (9, fig. 1–3) in the right hand.

(2) Using the left hand, turn the knob on the sphere counterclockwise to full open. Air and fuel under pressure will be heard rushing into the hose. When fuel fills the hose, the rushing sound stops. The flamethrower is now ready for firing.

(3) With the palm of the left hand rapidly squeeze the ignition safety lever; at the same time, with the fingers, rapidly squeeze the ignition lever and hold firmly. This should ignite one match in the ignition cylinder. If the match does not ignite, repeat the operation. Once lit the match ignites the incendiary pellet. Each incendiary pellet will burn 8 to 12 seconds.

(4) With the palm of the right hand, rapidly squeeze the valve safety lever; at the same time, with the fingers, rapidly squeeze the valve lever and hold firmly. This will propel the fuel from the gun, ignited by the incendiary pellet. The right hand controls the fuel flow either as one continuous burst or several short bursts. By pressing and releasing the valve lever the gun can be fired at any time while an incendiary pellet is ignited.

(5) Release the valve lever to stop the fuel flow.

2–12. During Mission

It may be necessary to reservice the flamethrower during a mission.

a. Replace the ignition cylinder according to paragraph 2–10.

b. Operator or crew can fill fuel tanks according to paragraph 4–11.

c. Replace high-pressure spheres as follows:

(1) Close the valve by turning the knob (12, fig. 1–5) clockwise.

(2) Disconnect the quick-disconnect coupling half (11) on the hose from valve (13).

(3) Pull back the catch (10). Rotate the high-pressure sphere counterclockwise until the red triangle marker on the sphere lines up with the red triangle marker on the fuel tank.

(4) Remove the high-pressure sphere.

(5) Pull back catch (10). Install charged high-pressure sphere by alining red triangle. Rotate sphere clockwise and insure that the catch (10) is seated properly.

(6) Remove yellow plastic cap from the sphere adapter.

(7) Connect the quick-disconnect coupling (11) to the valve (13).

2–13. Expendable Items

a. Table 2–1 lists the expendable items required to properly maintain and operate the flamethrower.

b. The items listed are authorized in accordance with provisions of supply bulletin, SB 700–50 on expendable items or can be purchased locally. See table 2–1 for expendable items.

2–14. After-Firing or Aborted Mission

Perform the following steps after firing operations have been completed or an aborted mission.

a. Release all pressure in fuel tanks. Point the gun at the ground. Press the gun valve safety lever (3, fig. 1–3) and lever (4) to dispose of the fuel and vent the pressurized air.

WARNING

The gun nozzle shield is very hot after firing.

b. Point the gun at the ground. Depress the shield latch (fig. 1–4) and allow the nozzle shield and ignition cylinder to drop off the gun.

NOTE

The officer in charge will decide whether to save the partly used ignition cylinder for future use or dispose of it.

c. Screw the nozzle shield back on the gun.

d. Turn the knob on the sphere clockwise.

e. Move to a safe area.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

2-15. Climatic Extremes

a. Heat. Heat has no appreciable effect on the flamethrower.

b. Cold. The flamethrower can be fired effectively at temperatures as low as +30° F. It can be fired at colder temperatures but may be necessary to ignite two or more matches in the ignition cylinder. Additional matches can be ignited by resqueezing the ignition safety lever and then the ignition lever.

2-16. High or Variable Winds

High winds, cross winds, or variable winds will break up the flame rod and shorten the range; headwinds may blow the flame back on the gunner. The gunner must compensate for high and variable winds to maintain accuracy.

2-17. Snow or Rain

CAUTION

Care must be taken to keep snow, mud, or ice out of the nozzle and working parts of the gun to prevent a malfunction.

The flamethrower can be fired in snow or rain or after brief immersion in water.

CHAPTER 3

OPERATOR'S MAINTENANCE INSTRUCTIONS

Section I. PREVENTIVE-MAINTENANCE SERVICES

3-1. General

The gunner is responsible for specific regular preventive-maintenance services to insure that the equipment operates properly and to lessen the probability of mechanical failure.

3-2. Before-Operation Inspections

The gunner must perform the following inspections before using the flamethrower. Report **all** defects to organizational maintenance personnel.

a. Turn the knob on the high-pressure sphere clockwise to stop the flow of pressurized air.

b. Operate the ignition safety lever (5, fig. 1-3) and ignition lever (7).

Section II. PREVENTIVE-MAINTENANCE CHECKS AND SERVICES

3-3. Purpose

The preventive-maintenance checks and services (table 3-1) provide the operator with a list of maintenance services which must be performed at the intervals prescribed. Use the list to make sure that all authorized maintenance is accomplished. If corrective action is not authorized at operator's level, report equipment defects to organizational maintenance personnel.

3-4. Explanation of Columns

A number under before- or after-operation in the interval and sequence No. column indicates that the services opposite the number must be performed in numerical sequence at the prescribed time. The time required to perform all the checks and services for each interval is shown in the work time column. These times are given in hours and tenths.

Table 3-1. Operator/Crew Preventive-Maintenance Checks and Services

B—Before Operation
Time required: 0.5

D—During Operation

A—After Operation
Time required: 0.1

Interval and Sequence No. B D A	Item to be inspected/procedure	Work time (M/H)
1	*High-Pressure Valve.* Turn knob (12, fig. 1-5) clockwise as far as it will go to make sure it is closed.	0.1
2	*Ignition Safety Lever and Ignition Lever.* Squeeze the levers (5 & 7, fig. 1-3) to see that they operate freely. (When the ignition safety lever is depressed, the ignition lever is free to depress.)	0.1
3	*Valve Safety Lever and Valve Lever.* Squeeze the levers (3 & 4, fig. 1-3) to see that they operate freely. (When the safety lever is depressed the valve lever is free to depress.)	0.1
4	*Tanks.* Position the tanks on the gunner's back and adjust by sliding buckles on shoulder straps and waist strap. The straps should be adjust until the bottom of the tanks rest against the small of the gunner's back and the tanks are held snugly so that they will not shift around while the gunner changes position.	0.1
5	*Ignition Cylinder Installation.* Depress the nozzle shield latch (fig. 1-4) and unscrew the nozzle shield. Place the ignition cylinder (3, fig. 2-2) on top of the spring case assembly (7). Place the nozzle shield (fig. 1-4) over the ignition cylinder and engage the outercase pin in the nozzle shield slot. Screw the nozzle	0.1

Table 3-1. Operator/Crew Preventive-Maintenance Checks and Services—Continued

B—Before operation
Time required: 0.5

D—During Operation

A—After Operation
Time required: 0.1

Interval and Sequence No. B D A	Item to be inspected/procedure	Work time (M/H)
	shield in place. Back off the nozzle shield until the shield latch is engaged by the notch in the nozzle shield.	
6	*Ignition Cylinder Removal.* Squeeze the valve safety lever and valve lever (3 & 4, fig. 1-3) until all pressure is released from the fuel tanks. Point the gun at the ground. Depress the nozzle latch (fig. 1-4) and remove the nozzle shield and the ignition cylinder. Screw the nozzle shield back on the gun.	0.1

CHAPTER 4
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

4-1. General

The M9A1-7 flamethrower and its tanks are issued in a packing chest. The gun is packed in a fiberboard box in the chest. Barrier paper seals both ends of the hose. A copy of the lubrication order is attached to the inside of the chest cover.

4-2. Unpacking and Inspection

Unpack the flamethrower as follows:

a. Cut the steel strapping and remove screws securing the cover to the packing chest.

b. Unlock the hasps at the front end of the packing chest. Remove the contents from the packing chest. See that all contents (*c*) are present and serviceable. Report any maintenance requirements beyond organizational maintenance to direct support maintenance personnel.

c. The packing chest contains the following:

(1) Tanks (fig. 1-1).
(2) Hose (fig. 1-1).
(3) Gun (fig. 1-1).

NOTE

The ignition cylinders (para 1-8) are not packed with the flamethrower. They must be requisitioned separately.

4-3. Hydrostatic and Volumetric Testing

General Support maintenance personnel will perform the hydrostatic and volumetric testing. Check hydrostatic and volumetric dates (para 6-1).

4-4. Storage Life and Service Life — M8 Hose

a. Storage Life.

WARNING

Do not use the hose if the 5-year storage life is exhausted.

Storage life is 5 years from the date of manufacture, which is stamped on the coupling at each end of the hose. Check storage dates of hose (para 6-2).

b. Service Life.

WARNING

Do not use the hose if the 2-year service life is exhausted.

The service life of the hose begins when the hose is initially put into use. This date is stamped on the hose coupling. Check the date and see that the hose is serviceable. If no service date is marked on the hose, return to general support maintenance for testing and marking.

4-5. Protective Material Removal

a. Drain preservative oil from the fuel tanks as follows:

(1) Remove the pressure cap (13, fig. 1-7) from the fuel tank and stow on the dust cap (11).
(2) Drain preservative oil from the tanks.
(3) Install the pressure cap on the fuel tank outlet.

b. Remove masking tape and protective material from the equipment.

c. Use drycleaning solvent to remove preservative material from the equipment.

4-6. Connecting Gun and Hose

The hose is connected from the gun. Perform the following operations.

a. Apply antiseize compound on the threads of the coupling (2, fig. 1-3).

b. Wrench tighten the hose coupling to the inlet body (9) on the gun.

4-7. Tanks

The tanks, frame, hose, and manifold are shipped assembled. Remove protective material and drain preservation oil when the equipment is received (para 4-5).

Section II. PAINTING AND LUBRICATION

4-8. General

Organizational maintenance personnel are authorized to spot paint on the M9A1-7 flamethrower.

4-9. Paints To Be Used

a. Preparation of Surface. Apply masking tape to all surfaces, pipe threads, and preformed packings

that are not to be painted. Apply masking tape on the red triangle that is on the high-pressure sphere and the short fuel tank. Prepare the surface for repainting.

b. Primer. Prime all worn and scratched surfaces with one coat of zinc chromate primer.

c. Exterior Surfaces. Spot paint the exterior surfaces of the flamethrower with two coats of enamel, lusterless, green, No. X-34087. After applying the final coat of paint on the high-pressure sphere assembly and the short fuel tank, restore the red triangle marking on the sphere assembly and short fuel tank with lusterless paint, color No. 31136 (red).

4-10. General Lubrication Information

Lubrication order LO 3-1040-257-30 is packed with the flamethrower in the packing chest. Lubrication on the flamethrower is performed by direct support maintenance personnel.

Section III. SERVICING

4-11. Filling Fuel Tanks

Organizational maintenance personnel are authorized to fill the fuel tanks.

WARNING

Safety precautions will be established by the unit commander before handling and filling fuel tanks.

a. Obtain prepared flamethrower fuel for the flamethrower (TM 3-366) fuel tanks.

b. Close the valve by turning the knob (12, fig. 1-5) clockwise.

c. Disconnect the quick-disconnect coupling half (5, fig. 1-7) from the filler caps.

d. Remove the filler caps from both fuel tanks.

NOTE

Fuel level in each fuel tank should be approximately 2 inches from the top of the fuel tank.

e. Fill the fuel tanks with desired fuel (TM 3-366).

f. Install and tighten filler caps. Connect the quick-disconnect coupling half (5) to the filler cap adapters.

4-12. Replacing High-Pressure Sphere

a. Removal.

(1) Close the valve by turning the knob (12, fig. 1-5) clockwise.

(2) Disconnect the quick-disconnect coupling half (11) on the hose from the valve (13).

(3) Pull back the catch (10). Rotate the high-pressure sphere counterclockwise until the red triangle marker on the sphere lines up with the red triangle marker on the fuel tank.

(4) Remove the high-pressure sphere.

b. Installation. Install the pressurized high-pressure sphere on the flamethrower as follows:

(1) Pull back the catch (10, fig. 1-5). Aline the red triangle on the sphere with the red triangle on the fuel tank. Rotate the sphere clockwise, release the catch (10), and insure that it is seated.

(2) Remove yellow plastic cap from the sphere adapter.

(3) Connect the quick-disconnect coupling (11) to the valve (13).

4-13. Ignition Cylinders

Organizational maintenance personnel are responsible for issuance of ignition cylinders.

4–14. Cancelled or Aborted Mission

When a flamethrower mission is cancelled or aborted, perform the following operations:

a. Point the gun at the ground. Depress the shield latch (fig. 1–4) and allow the nozzle shield and ignition cylinder to drop off the gun.

b. Take the flamethrower to a suitable area to dispose of the fuel.

c. Place the ignition cylinder in storage can.

d. Point the gun at the ground far enough away to prevent splatter from hitting operator. Press the gun valve safety lever (3, fig. 1–3) and lever assembly (4) to dispose of the fuel and vent all pressurized air.

e. Turn the knob on the sphere clockwise.

f. Lift the protective cover to expose the filler caps (2, fig. 1–7).

g. Disconnect the quick-disconnect coupling halves (5) from the filler caps.

h. Remove the filler caps from both fuel tanks.

i. Fill the fuel tanks with diesel oil. Oil level should be approximately two inches from the top of the fuel tanks.

j. Install the filler caps and shake tanks to agitate the diesel oil.

NOTE

Retain the diesel oil if more than one flamethrower is to be cleaned.

k. Remove the filler caps, squeeze the valve safety lever (3, fig. 1–3) and valve lever (4) and drain the tanks through the hose and gun.

l. Disconnect the hose and completely drain the hose, gun, and fuel tanks.

m. Install pressure caps (13, fig. 1–7).

n. Wipe the exterior surfaces of the gun, hose, and tanks with a dry cloth.

o. Remove spring case (7, fig. 2–2) from the gun. Clean and replace.

p. Screw the nozzle shield back on the gun.

q. Remove both filler caps, wipe clean, and replace on tanks.

r. Clean the back pads and straps with soap, water, and a stiff brush.

NOTE

Let the hose connected to the inlet body of the gun. Place the gun and hose in the bottom of the packing chest with the gun to the front, hose to the left. Place divider with the long notch to the right.

s. Allow time for drying and pack the flamethrower in the packing chest.

Section IV. PREVENTIVE-MAINTENANCE CHECKS AND SERVICES

4–15. General

The purpose of preventive-maintenance checks and services is to detect the first signs of failure in the M9A1–7 flamethrower and to insure that appropriate corrective action is taken before repair and replacement are required.

4–16. Before Issuing Flamethrower to Operator

Before issuing the flamethrower to the operator for use, perform the following visual inspections:

a. Gun.

(1) Depress the nozzle shield latch (fig. 1–4) and unscrew the nozzle shield from the gun.

(2) Check the threads on the gun nozzle and in the shield for possible damage.

(3) Check the spring case to see that it turns freely on the ignition head body and that it is not damaged.

(4) Replace the nozzle shield on the gun.

(5) Squeeze the ignition safety lever (5, fig. 1–3) and the ignition lever (7) to see that they operate freely.

(6) Squeeze the valve safety lever (3) and the valve lever (4) to see that they operate freely. Check for missing screws.

b. Hose.

(1) Check hydrostatic test date on hose (para 6–1).

(2) Check storage life and service life of the hose (para 6–2).

(3) Inspect for cuts, frays, and other damage.

(4) Check the quick-disconnect coupling (1) for ease of operation.

(5) Check preformed packing (gasket) (fig. 2-1) to see that it is present and serviceable.

c. Tanks.

(1) Check fuel tanks (8, fig. 1-7) for dents, cracks, and other damage.

(2) Disconnect hose (4) from filler caps (2). Remove filler caps. Check threads in filler caps and on tanks for damage.

(3) Check to see that preformed packing (3, fig. 4-1) is present and serviceable.

(4) Replace filler caps on tanks and connect hoses.

(5) Remove pressure cap (26) and check to see that preformed packing (25) is present and serviceable.

(6) Turn draincock (27) in and out to make sure it is operable.

(7) Replace the pressure cap.

d. Pressure Regulator.

(1) Check to see that the dust cover (16) and rubber band regulator cover (14) are present and serviceable.

(2) Check to make sure the hose clamps (9) are tight and the regulator is secure and not damaged.

(3) Check to see that the manifold (13) is connected to the regulator and the fittings in the manifold are tight.

(4) Check the hose (19) from the high pressure sphere to make sure it is securely fastened to the regulator.

(5) Check to see that the rupture disk (10, fig. 1-7) is tight in the manifold by trying to twist to the right and left.

e. High-Pressure Sphere Assembly.

(1) Check high-pressure sphere (1, fig. 1-6) for dents, cracks, and other damage.

(2) Disconnect the hose from the high-pressure valve (6).

(3) Make sure the high-pressure sphere is locked in place by attempting to turn right and left.

(4) Turn knot (7) clockwise and counterclockwise to make sure it is operable.

(5) Connect the hose to the high-pressure valve.

f. Frame.

(1) Check frame (1, fig. 4-2) for cracks or breaks and missing nuts and bolts.

(2) Check back pads (3 and 5) and nylon cord (4) for cuts and tears.

(3) Check for missing or loose fasteners and that slide buckles are not bent or broken.

4-17. After Operation Services

Upon receipt of a flamethrower that has been used on a mission, perform the following operations and checks and services according to table 4-1.

WARNING

Safety precautions will be established by the unit commander before performing the after-operations services.

a. Lift the protective cover (3, fig. 1-7) to expose filler caps (2).

b. Disconnect the quick-disconnect couplings (5) from the filler caps (2) of both fuel tanks.

c. Remove the filler caps from both fuel tanks.

d. Disconnect the gun and hose and drain any remaining fuel from the fuel tanks.

e. Connect the gun and hose to the tank.

1 Fuel tank
2 Preformed packing
3 Preformed packing
4 Filler cap assembly
5 Swivel
6 Preformed packing
7 Adapter
8 Hose assembly
9 Hose clamps
10 Catch
11 Nipple
12 Preformed packing
13 Manifold
14 Cover
15 Regulator valve
16 Dust cover
17 Preformed packing
18 Nipple
19 Hose assembly
20 Valve assembly
21 Bushing
22 Spring
23 Sphere assembly
24 Coupling half
25 Preformed packing
26 Pressure cap
27 Drain cock

Figure 4-1. Tanks, fuel and pressure section, exploded view—Continued

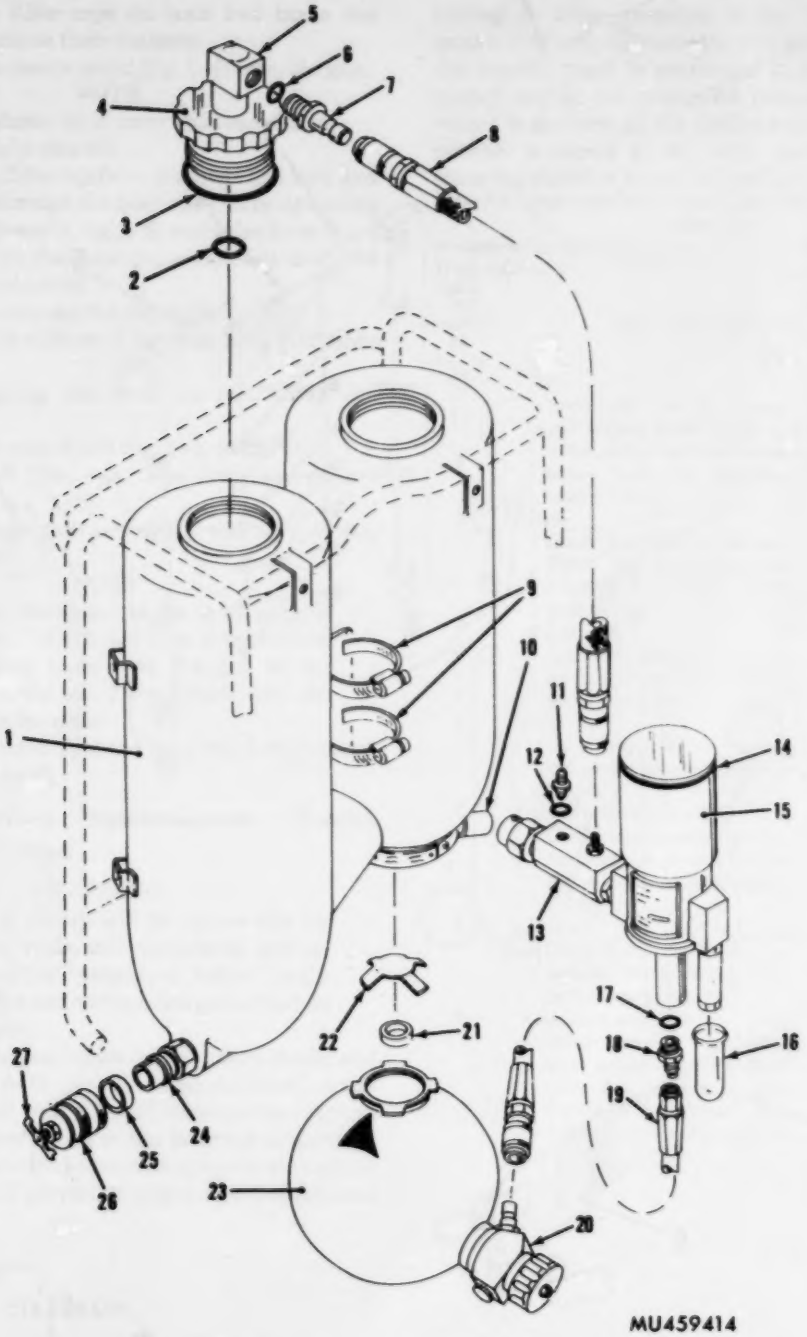
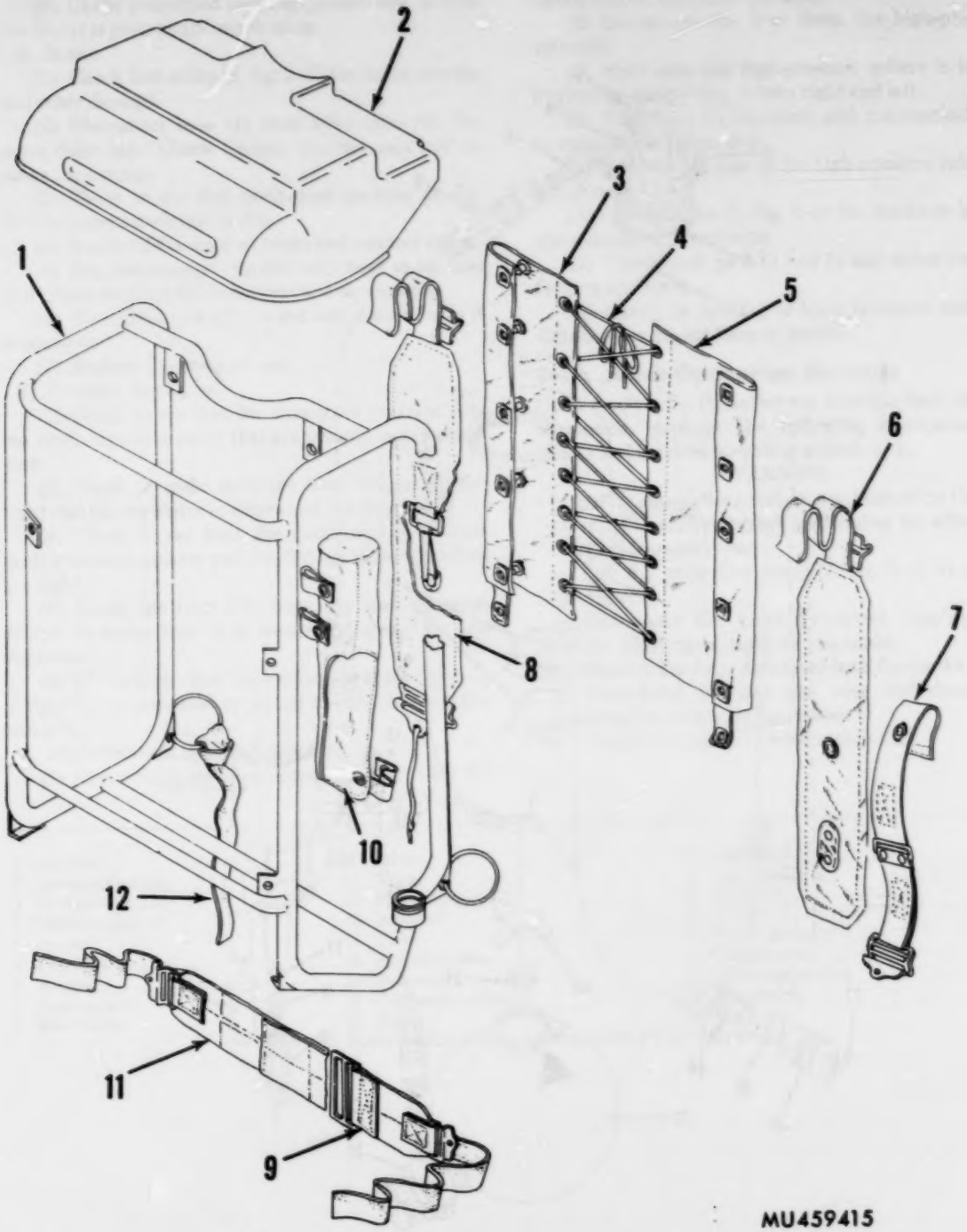


Figure 4-1. Tanks, fuel and pressure section, exploded view.



1 Frame assembly
2 Protective cover
3 Back pad assembly
4 Cord
5 Back pad assembly
6 Right shoulder strap
7 Quick release strap assembly
8 Left shoulder strap
9 Right waist strap
10 Holster
11 Webbing strap
12 Webbing strap

Figure 4-2. Tank frame assembly, exploded view.

f. Fill the fuel tanks with diesel oil. Oil level should be approximately two inches from the top of the fuel tanks.

g. Install the filler caps on both fuel tanks and shake tanks to agitate their contents.

h. Remove the nozzle shield (fig. 1-4) from the gun.

NOTE

Retain the diesel oil if more than one flamethrower is to be cleaned.

i. Remove the filler cap from the large fuel tank and drain the tanks through the hose and gun by squeezing the valve safety lever (3, fig. 1-3) and valve lever (4).

j. Disconnect the fuel hose and completely drain the hose, gun, and fuel tanks.

k. Install pressure cap (13, fig. 1-7).

l. Wipe exterior surface of the gun, hose, and tanks with a dry cloth.

m. Remove spring case from the gun. Clean and replace.

n. Screw the nozzle shield (fig. 1-4) on the gun.

o. Remove both filler caps, wipe clean, and replace on tanks.

p. Clean the back pads and straps with soap, water, and a stiff brush.

NOTE

Let the hose connected to the inlet body of the gun. Place the gun and hose in the bottom of the packing chest with the gun to the front, hose to the left. Place divider with the long notch to the right.

q. Allow time for drying and pack the flamethrower in the packing chest.

4-18. Preventive Maintenance Checks and Services

WARNING

The officer in charge will be responsible for enforcing the rules and regulations, and insuring safety of personnel before maintenance checks and services are performed on this equipment.

a. Purpose. The preventive-maintenance checks and services (table 4-1) provide organizational maintenance personnel with a list of maintenance services which must be performed at the intervals prescribed. Use the list to make sure that all required maintenance is accomplished. If corrective action is not authorized at organizational level, report equipment failures to direct support maintenance personnel.

b. Explanation of Columns. A number under before issuing or after operation in the "Interval and sequence No." column indicates that the service opposite the number must be performed in the numerical sequence and at the prescribed interval. The time required to perform all the checks and services for each interval is shown in the work time column. These times are stated in hours and tenths.

Table 4-1. Organizational Preventive-Maintenance Checks and Services

B—Before issuing flamethrower — Time required: 0.7

A—After operation — Time required: 1.0

Interval and sequence No. B	Interval and sequence No. A	Items to be inspected/procedure	Work time (M/H)
1		*Gun.* Inspect the gun for damage and missing parts. Check ignition safety lever and valve safety lever for operation (para 4-16*a*).	0.1
2		*Hose.* Check the hose for damage. Check the quick-disconnect coupling for missing parts (para 4-16*b*).	0.1
3		*Tanks.* Check the tanks for dents and cracks. Check for missing parts (para 4-16c).	0.1
4		*Regulator.* Check regulator for covers and proper connections (para 4-16*d*).	0.1
5		*High-Pressure Sphere.* Check high-pressure sphere for cracks or damage. Check for proper installation (para 4-16*e*).	0.1
6		*Frame.* Check frame for breaks or damage. Check canvas parts for damage (para 4-16*f*).	0.1
7		*Gun, Hose, and Tank.* Check to see that after operations checks and services of table 3-1 have been performed by the operator. Perform operations in paragraph 4-17.	1.0

Section V. TROUBLESHOOTING

4–19. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure that may develop in the M9A1–7 portable flamethrower. Troubleshooting information is limited to allocated maintenance functions that can be accomplished at organizational level. Maintenance beyond the organizational level must be reported to direct support maintenance personnel.

4–20. Troubleshooting

Table 4–2 lists organizational maintenance troubleshooting operations. Each malfunction is followed by probable causes and corrective actions that can be taken to correct the malfunction.

Table 4–2. Troubleshooting

Item No.	Malfunction	Probable cause	Corrective action
1	Fuel leaks at hose quick-disconnect coupling and fuel tank outlet.	*a.* Quick-disconnect coupling half not installed correctly on fuel outlet coupling.	Disconnect quick-disconnect coupling half and connect correctly.
		b. Rubber gasket in quick-disconnect coupling missing or damaged.	Report to direct support maintenance.
2	Fuel leaks at hose coupling and gun inlet body.	Hose coupling loose.	Tighten hose coupling (para 4–6).
3	Fuel leaks at filler cap.	*a.* Filler cap loose.	Tighten filler cap.
		b. Preformed packing missing, damaged, or deteriorated.	Report to direct support maintenance.
4	No discharge of fuel when valve safety lever and valve lever are depressed.	*a.* High-pressure valve closed.	Fully open high-pressure valve (turn knob counterclockwise).
		b. High-pressure sphere empty.	Replace sphere assembly (para 4–12).
5	Firing range less than 12 meters.	*a.* High-pressure valve not fully open.	Fully open high-pressure va' (turn knob counterclockwise)
		b. Insufficient pressure in high-pressure sphere.	Replace sphere assembly (para 12).
		c. Regulator not working.	Check regulator (para 4–16*d*).
		d. Improper fuel mixture.	Drain and refill tanks (para 4–11).
6	Ignition cylinder match does not ignite.	*a.* Defective match.	Release and squeeze ignition safety lever.
		b. Ignition cylinder defective.	Replace ignition cylinder (para 2–10).

Section VI. TANKS

4–21. Filler Caps

Organizational maintenance personnel are authorized to replace the filler cap assemblies (4, fig. 4–1). The following procedure is used for either filler cap assembly.

WARNING

Release the air in the air pressure system before attempting any maintenance or modification to the pressure system.

a. Removal.

(1) Close the valve by turning the knob (12, fig. 1–5) clockwise.

(2) Turn the tanks upside down on the plastic cover (7). Open the drain cock (27, fig. 4–1) to vent the pressurized air in the system. Close the drain cock after the pressurized air has been vented.

(3) Return the tanks to their original position. Lift the protective cover to expose the filler caps (4).

(4) Disconnect the quick-disconnect coupling half that is on the hose (8) from the filler cap (4).

(5) Remove the filler cap assembly (4). Replace filler cap assembly if required.

b. Assembly and Installation.

(1) Install the filler cap assembly (4).

(2) Connect the quick-disconnect coupling half that is on the hose to the filler cap.

4-22. Pressure Cap

Organizational maintenance personnel are authorized to replace the pressure cap assembly (26, fig. 4-1).

a. Removal and Disassembly.

(1) Close the valve by turning the knob (12, fig. 1-5) clockwise.

(2) Turn the tanks upside down on the plastic cover (7). Open the drain cock (27, fig. 4-1) to vent the pressurized air in the system.

(3) Remove the pressure cap assembly (26). Inspect the parts including the preformed packing.

b. Assembly. Install the pressure cap assembly.

4-23. Regulator Cover

Organizational maintenance personnel are authorized to replace the regulator cover.

a. Removal. Remove the regulator cover (14, fig. 4-1).

b. Installation. Install regulator cover.

4-24. Dust Cover

Organizational maintenance personnel are authorized to replace the dust cover.

a. Removal. Remove dust cover (16, fig. 4-1).

b. Installation. Install dust cover (16).

4-25. Tank Frame Assembly

Organizational maintenance personnel are authorized to replace the holster assembly, back pad assembly, cord and straps.

a. Holster Assembly. Remove and replace the flame gun holster (10, fig. 4-2). The holster is clipped to the side frame.

b. Back Pad Assembly. Remove and replace back pad assembly (3 and 5). Replace cord if required. Horizontal sides of the back pad are clipped to frame.

c. Strap Assemblies. Remove and replace the strap assemblies (fig. 4-2). The straps contain their own buckles and fasteners for attachment to the frame and for adjustment.

Section VII. SPHERE CARRIER (deleted)

4-26. Strap Assemblies (deleted)

Section VIII. GUN

4-27. Nozzle Shield

Organizational maintenance personnel are authorized to replace the nozzle shield.

a. Removal.

(1) Depress the shield latch (fig. 1-4).

(2) Unscrew the nozzle shield.

b. Installation.

(1) Install the nozzle shield and engage the outercase pin in the shield latch.

(2) Screw the nozzle shield in place. Back off the nozzle shield until the shield latch is engaged by the notch in the nozzle shield.

Figure 4-3. Sphere carrier, cover and straps, exploded view (deleted).

CHAPTER 5

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Section I. SERVICING

5-1. General

Direct support maintenance personnel are authorized to charge and pressurize the high-pressure spheres. Spheres should be charged to a pressure of 2,000 to 2,100 pounds per square inch.

5-2. Testing and Charging High-Pressure Spheres

a. Testing.

(1) *Pressure in high-pressure spheres.* Direct support maintenance personnel are authorized to check the air pressure in the high-pressure sphere before charging (TM 3-1040-221-12) and prior to issue with the flamethrower.

(2) *Hydrostatic and volumetric testing.*

(*a*) Check hydrostatic and volumetric test dates (para 6-1).

(*b*) Check storage life and service life dates (para 6-2).

b. Charging High-Pressure Spheres. TM 3-1040-221-12 contains charging operations by using the M27 riot control service kit. Air may be provided by either commercial cylinders or suitable air compressor. Place yellow plastic cap on sphere adapter after charging.

c. Service Equipment. Compressors and service equipment that have been approved for charging high-pressure spheres.

(1) M1A1 7 cfm power-driven reciprocating compressor (TM 3-1040-203-12).

(2) AN-M4 3 1/2 cfm flamethrower power-driven reciprocating compressor (TM 3-1040-210-12).

(3) AN-M4B 3 1/2 cfm flamethrower power-driven reciprocating compressor (TM 3-1040-224-12).

(4) AN-M4C 3 1/2 cfm flamethrower power-driven reciprocating compressor (TM 3-1040-244-12).

(5) AN-M4D 3 1/2 cfm flamethrower power-driven reciprocating compressor (TM 3-1040-263-12).

(6) M4A2 50 cfm truck mounted flamethrower service unit (TM 3-1040-219-12).

(7) M45E1 50 cfm tracked vehicle mounted flamethrower service unit (TM 3-1040-256-12).

(8) M27 riot control agent disperser portable flamethrower service kit (TM 3-1040-221-12).

5-3. Checking Pressure Regulator Setting and System for Leaks

a. General. Direct support maintenance personnel are authorized to check the pressure regulator setting and system for leaks. A test gage assembly must be temporarily installed prior to test and high-pressure sphere must be fully charged.

b. Disassembly.

(1) Check to see that the high-pressure valve (20, fig. 4-1) is closed.

(2) Remove the rupture disk assembly (10, fig. 1-7) from the manifold (9). Remove preformed packing.

(3) Install test adapter (3, fig. 5-1) from M27 service kit.

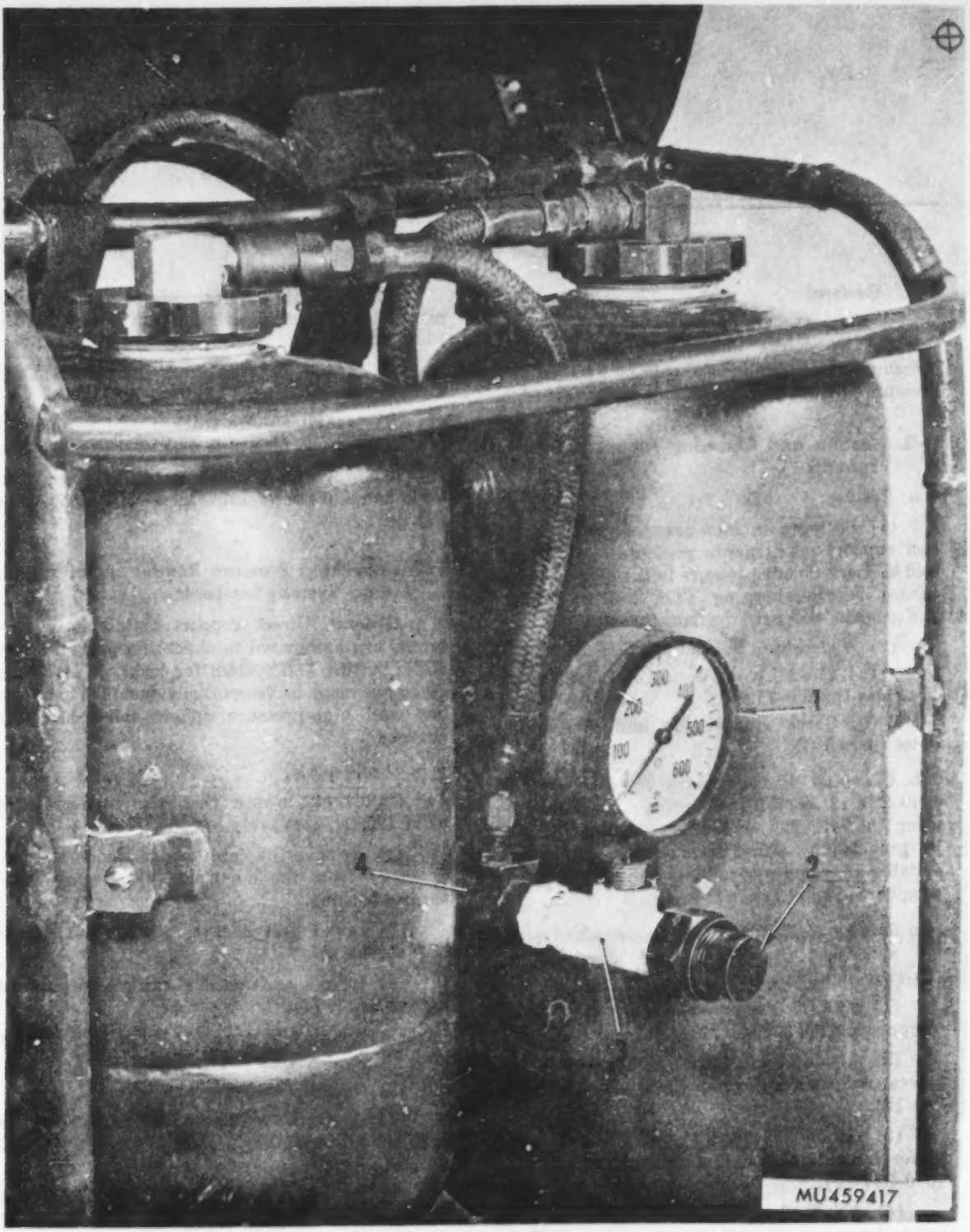
(4) Install preformed packing and rupture disk assembly (2).

(5) Install test gage (1) from M27 service kit.

(6) Open the high-pressure valve.

(7) Check the reading on the test gage. The gage should indicate a pressure between 285 and 315 psi.

(8) Wait 5 minutes and again check the reading on the gage. If the pressure increases or decreases more than 10 psi, replace the regulator (para 5-15).



1 Test gage 2 Rupture disk assembly 3 Adapter 4 Manifold

Figure 5-1. Flamethrower assembled for pressure test.

(9) If the pressure regulator setting is within tolerance fire a burst for at least 3 seconds.

(10) Check the reading on the test gage.

(11) If pressure remains between 285 and 315 psi, wait 5 minutes and fire a 3-second burst.

(12) Check the reading on the test gage.

(13) Check for possible system leaks using soap and water.

(14) If any leaks are found, make necessary repairs and retest for leaks.

(15) If no leaks are found, close high-pressure valve and drain the system.

c. Reassembly.

(1) Remove the rupture disk assembly (2, fig. 5–1).

(2) Remove the test gage assembly (1).

(3) Install preformed packing and rupture disk assembly in the manifold.

(4) Dry the interior of the fuel tanks, gun, and hose with compressed air (5 to 10 psi). Wipe the exterior surfaces with a dry cloth.

5–4. Lubrication

a. LO 3–1040–257–30 gives lubrication instructions for the M9A1–7 flamethrower. A copy of the lubrication order is packed with the flamethrower in the packing chest.

b. The time intervals on the lubrication order are for normal operating conditions. Lubrication should be performed more often if flamethrower is operated for prolonged periods in sand or dust, or immersed in water.

Section II. GUN

5–5. General, M7 Gun

The gun group consists of the ignition section and the valve section. Two screws hold the sections together.

5–6. M7 Gun

Direct support maintenance personnel are authorized to replace the M7 gun.

a. Removal.

(1) Rotate the ball depressing ring (step C, fig. 2–1), on the quick-disconnect coupling half until the slot in the ring is in line with the lock pin.

(2) Pull the depressing ring back and remove the hose assembly from the fuel delivery coupling (step D).

(3) Disconnect the hose assembly coupling (10, fig. 1–3) from the M7 gun.

(4) Replace the M7 gun if necessary.

b. Installation.

(1) Apply antiseize compound on the hose assembly coupling threads (10, fig. 1–3).

(2) Connect the hose assembly coupling to the gun inlet body.

(3) Rotate the ball depressing ring on the quick-disconnect coupling half (step C, fig. 2–1) until the slot in the ring is in line with the lock pin.

(4) Depress the ball depressing ring and connect the quick-disconnect coupling half to the fuel delivery tank coupling (step D).

(5) Rotate the ball depressing ring until the slot in the ring is not in line with the lock pin.

5–7. Ignition Grip Assembly

Direct support maintenance personnel are authorized to replace the parts that make up the ignition section.

a. Removal and Disassembly. Remove and disassemble the ignition section as far as necessary to clean, lubricate, and replace parts.

(1) Perform the operation in paragraph 2–12.

(2) Loosen the four screws (17, fig. 5–2).

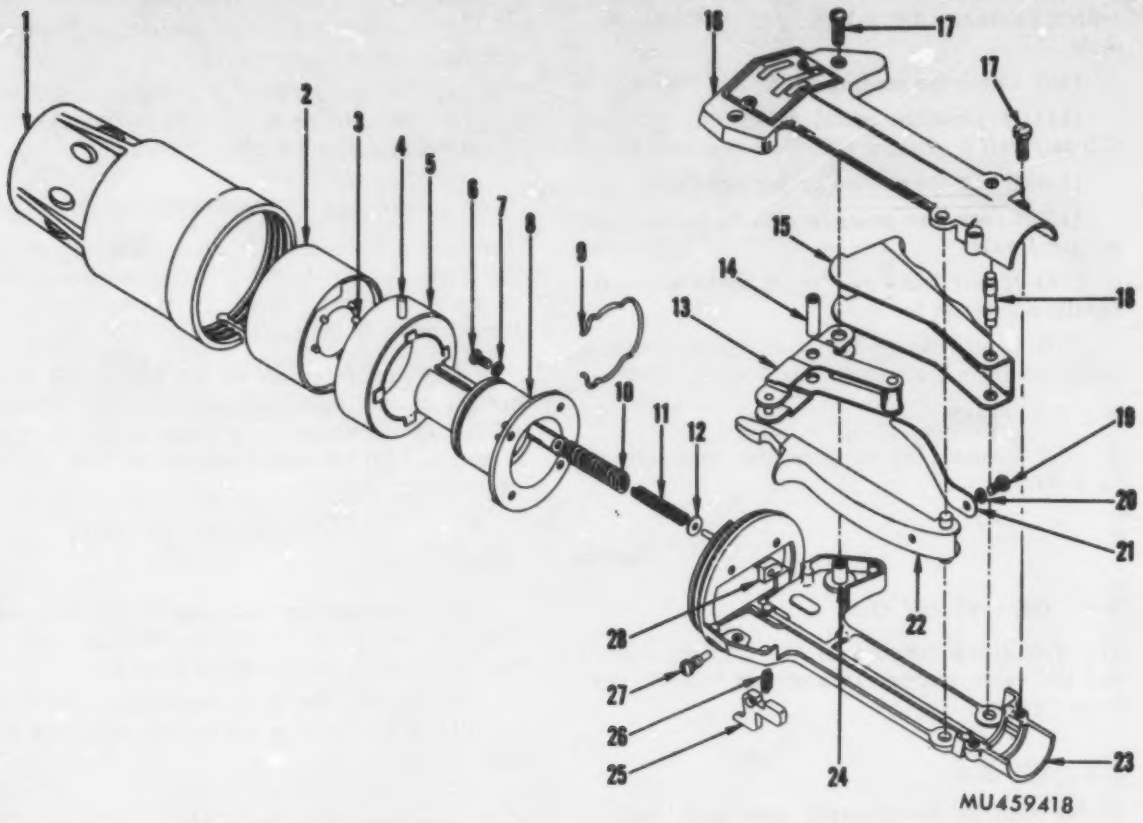
(3) Slide the valve section out of the ignition section.

(4) Remove the four screws (17) and the grip cover (16).

(5) Disengage and remove the safety lever (22) from the link (13).

(6) Disassemble the safety lever spring (21) from the safety lever (22) by removing screw (19) and lockwasher (20).

(7) With the thumb, press down on the link (13). Remove the lever assembly (15) and headless shoulder pin (18).



1	Nozzle shield	11	Inner spring	21	Safety lever spring
2	Ignition cylinder	12	Washer	22	Safety lever
3	Inner-case pin	13	Link	23	Grip assembly
4	Outer-case pin	14	Pin	24	Pivot
5	Spring case assembly	15	Lever assembly	25	Shield latch
6	Screw	16	Grip cover	26	Spring
7	Lockwasher	17	Screws	27	Screw
8	Head body	18	Shoulder pin	28	Pin assembly
9	Snap ring	19	Screw		
10	Outer spring	20	Lockwasher		

Figure 5-2. Ignition section of gun, exploded view.

(8) Screw one of the removed screws (17) into the head of the pin (14). Remove the pin (14).

(9) Remove the link (13), pin assembly (28), washer (12), outer spring (10), and inner spring (11).

(10) To remove the head body (8), remove the snapring (9), screws (6), and lockwashers (7).

NOTE

The following step is performed if the nozzle shield latch (25) is unserviceable.

(11) Remove screw (27), nozzle shield latch (25), and spring (26).

b. Lubrication. During assembly, replace, clean and lubricate the parts as required (LO 3-1040-257-30).

c. Assembly.

NOTE

The following step is performed if the nozzle shield latch (25) was removed in step *a*(11) above.

(1) Install the spring (26) and shield latch (25) in the grip assembly (23) slot. Install and

tighten screw (27). Check for proper operation of shield latch (25).

(2) Locate and position the shoulder on the head body (8) against the face of the grip assembly (23). Install lock washers (7) and screws (6). Tighten screws.

(3) Install link (13) on pivot (24).

(4) Slide the washer (12), inner spring (11), and outer spring (10) on the pin assembly (28). Insert the needle end of the pin assembly (28) into the tube in the head body (8). Pass the U-shaped end of the pin assembly (28) through the link (13) (fig. 5–3).

(5) For ease of installation, temporarily install screw (17, fig. 5–2) into pin (14).

(6) Compress the springs (10) and (11) with the pin assembly (28) until the U-section is in line with center hole in the link assembly (fig. 5–4).

(7) Holding the screw, install the pin through the link. Remove the screw after the pin has been installed.

(8) Install the lever assembly (15, fig. 5–2) and shoulder pin (18) as follows. Slide the lever assembly (fig. 5–5) on the arm of the link and install the shoulder pin.

(9) Connect the safety lever spring (21, fig. 5–2) to the safety lever (22) with lockwasher (20) and screw (19).

(10) Install the safety lever assembly (fig. 5–5).

Figure 5–3. Installing ignition pin assembly.

Figure 5–4. Inserting pin in ignition link.

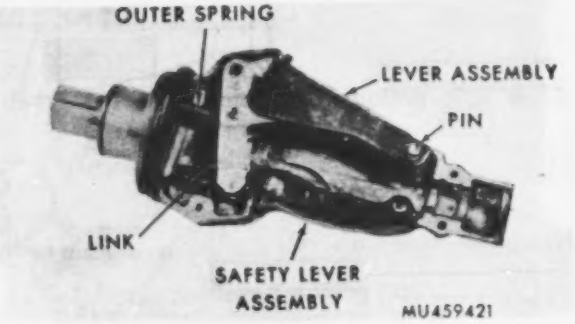


Figure 5–5. Ignition safety lever assembly.

(11) Lubricate parts as required.

(12) Install the grip cover (16, fig. 5–2) with four screws (17). Leave the two back screws loose.

(13) Face the inner-case pin (3) away from the head body (8). Install the spring case assembly (5) on the head body (8).

(14) Install the snap ring (9) to hold the head body (8) in place.

(15) Install nozzle shield (1).

(16) Slide the gun barrel section into the ignition section and tighten the screws (17).

5–8. Valve Grip Assembly

Direct support maintenance personnel are authorized to replace the parts that make up the valve grip assembly.

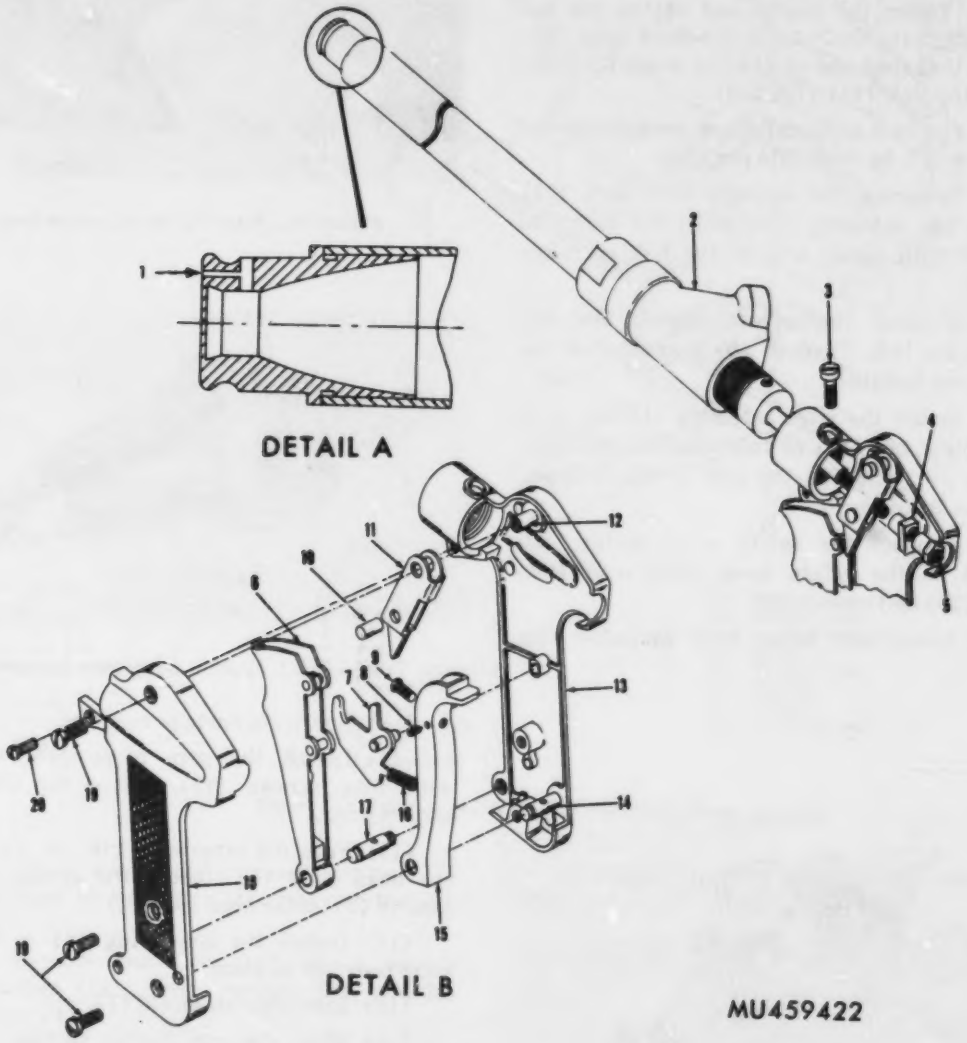
a. Removal and Disassembly. Remove and disassemble the valve section as far as necessary to clean, lubricate, and replace parts.

(1) Perform the operations in paragraph 2–12.

(2) Loosen the two screws (8, fig. 1–3) and remove the valve section from the ignition system.

(3) Remove screws (19, fig. 5–6) and screw (20) from the grip cover (18). Remove cover (18).

(4) Hold the spring (16) and remove safety lever (15) and spring (16). If necessary loosen the setscrew (8) and remove the bolt (9).



1	Atomizer hole	8	Setscrew	15	Safety lever
2	Inlet body	9	Bolt	16	Spring
3	Screw	10	Pin	17	Pin
4	Valve retractor	11	Valve link	18	Grip cover
5	Post	12	Pivot	19	Screws
6	Valve lever assembly	13	Valve grip	20	Screw
7	Link assembly	14	Pin		

Figure 5–6. Valve section, exploded view.

(5) Remove link assembly (7) and valve lever assembly (6).

(6) Insert a nail or rod into the holes in the pins (14 and 17). Remove bolt pins.

(7) Remove the post (5).

(8) Remove pin (10).

(9) Remove screw (3). Turn valve grip (13) counterclockwise and remove it. Remove valve retractor (4).

b. Assembly.

(1) Make sure that the atomizer hole (1) is open and clean. If necessary, clean the atomizer hole with a piece of wire.

(2) Screw the valve retractor (4) on the threaded shaft. Locate the valve retractor approximately in the center of the threaded portion of the shaft.

(3) Install the valve grip (13). Locate the hole in the valve grip (13) with the hole in the inlet body and install and tighten screw (3).

(4) Install pins (14 and 17).

(5) Install valve link (11) and pin (10).

(6) Install the post (5) with hexhead facing the rear of the gun. Do not tighten the post.

(7) If removed, loosely install setscrew (8) and bolt (9).

(8) Install valve lever assembly (6).

(9) Install link assembly (7). Install one end of the spring (16) on the link assembly (7).

(10) Install safety lever (15) and at the same time place the open end of the spring into the recessed hole in the safety lever (15).

(11) If necessary, adjust the space between the bolt (9) and the safety link (7) to .035±.010 inch. After adjustment has been made, lock bolt (9) with setscrew (8).

(12) Install the valve grip cover (18) and screws (19 and 20). Tighten screws.

(13) Slide the gun portion of the valve section into the ignition section and tighten both screws (8, fig. 1-3).

Section III. HOSE (Deleted)

5-9. Fuel Hose

(Deleted)

5-10. Quick-Disconnect Coupling Half and Preformed Packing

(Deleted)

Figure 5-7 (Deleted).

Section IV. TANKS

5-11. Tank Outlet Nipple

Direct support maintenance personnel are authorized to replace the tank outlet nipple (29, fig. 5-8), drain cock (31), and preformed packing (30).

a. Removal.

(1) Remove the pressure cap (step A, fig. 2-1).

(2) Remove the nipple (29, fig. 5-8).

(3) Remove drain cock (31).

(4) Remove preformed packing (30).

b. Installation.

(1) Apply antiseize compound on the nipple (29) threads.

(2) Screw the nipple into the fuel tank and tighten.

(3) Install drain cock (31).

(4) Install preformed packing (30).

(5) Install pressure cap.

5-12. Filler Cap Assembly

Direct support maintenance personnel are authorized to replace the parts that make up the filler cap assembly.

a. Removal.

(1) Disconnect the hose (11, fig. 5-8) from the adapter (4).

(2) Remove the check valve (9) and remove the preformed packings (10 and 8).

(3) Remove swivel (2) and preformed packings (5 and 6).

(4) If required, remove adapter (4) and preformed packing (3) from swivel (2).

1 Filler cap assembly
2 Swivel
3 Preformed packings
4 Adapter
5 Preformed packing
6 Preformed packings
7 Filler cap
8 Preformed packing
9 Check valve
10 Preformed packing
11 Pneumatic hose assembly
12 Fuel tank assembly
13 Rupture disk assembly
14 Screw
15 Catch assembly
16 Nipple
17 Manifold
18 Nut
19 Pressure regulator
20 Rupture disk
21 Clamps
22 Nameplate
23 Screw
24 Flat spring
25 Rubber bushing
26 High-pressure valve
27 Screw
28 High-pressure sphere assembly
29 Nipple
30 Preformed packing
31 Drain cock
32 Pressure cap assembly
33 Self-locking clip nut
34 Spacer
35 Screw

Figure 5-8. Fuel and pressure sections of tank group, exploded view — Continued.

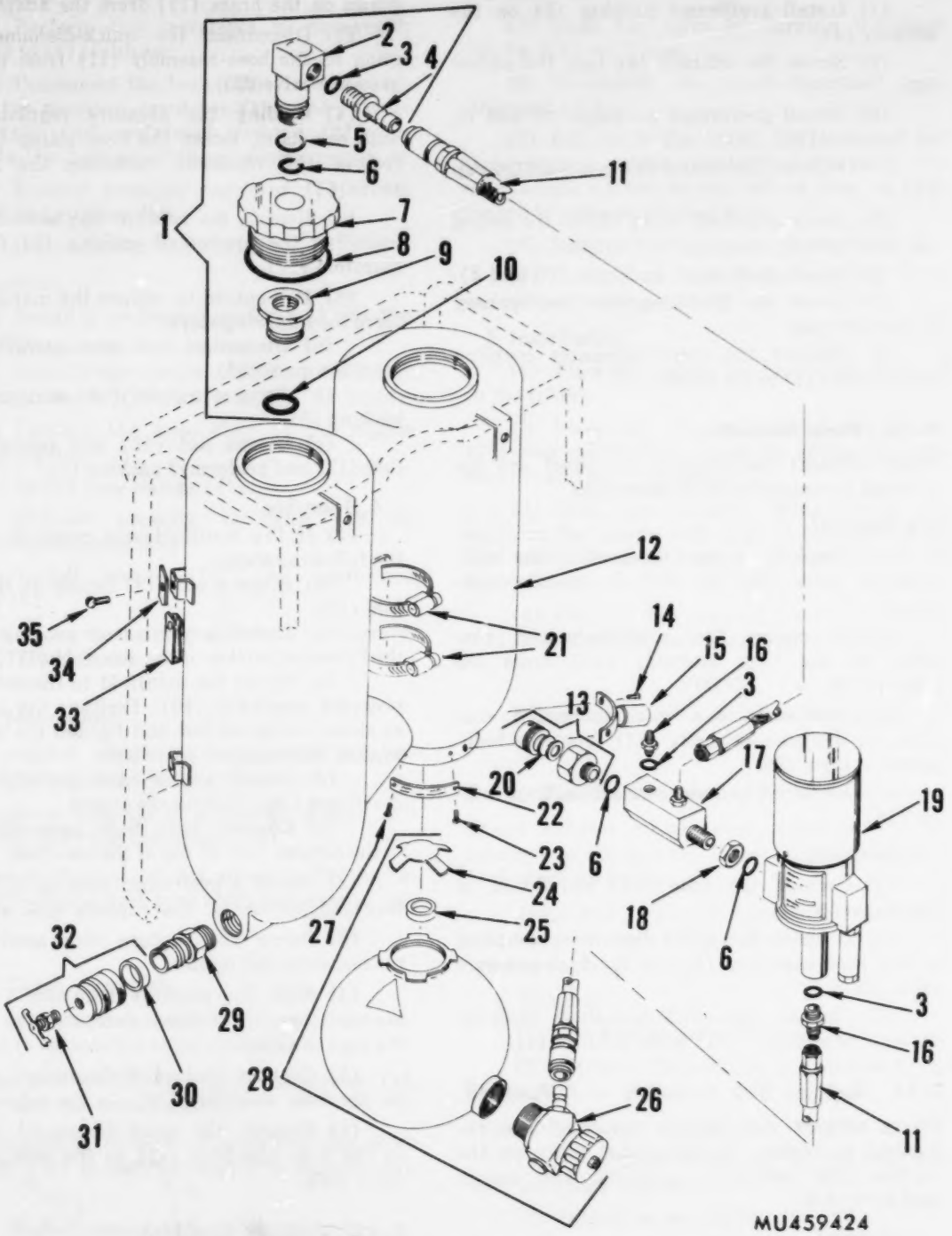


Figure 5-8. Fuel and pressure sections of tank group, exploded view.

b. Assembly.

(1) Install preformed packing (3) on the adapter (4).

(2) Screw the adapter (4) into the swivel (2).

(3) Install preformed packings (5 and 6) on the swivel (2).

(4) Screw the swivel (2) into the filler cap (7).

(5) Screw the check valve (9) to the swivel (2) and tighten.

(6) Install preformed packings (10 and 8).

(7) Screw the filler cap into the opening in the fuel tank.

(8) Connect the quick-disconnect coupling on the hose (11) to the adapter (4).

5–13. Hose Assembly

Direct support maintenance personnel are authorized to replace the hose assemblies.

a. Removal.

(1) Check to see that the knob on the high-pressure valve (26, fig. 5–8) is closed (clockwise).

(2) Disconnect the quick-disconnect coupling on the hose assembly (11) from the adapter (4).

(3) Disconnect the quick-disconnect coupling on the hose assembly (11) from the high-pressure valve (26).

(4) Remove the hose connection from nipple (16).

b. Assembly.

(1) Connect the hose (11) connection to the nipple (16).

(2) Connect the quick-disconnect coupling on the hose assembly (11) to the high-pressure valve (26).

(3) Connect the quick-disconnect coupling on the hose assembly (11) to the adapter (4).

5–14. Rupture Disk Assembly and Manifold

Direct support maintenance personnel are authorized to replace the parts that make up the rupture disk assembly, manifold, and associated hardware.

a. Removal.

(1) Check to see that the knob on the high-pressure valve (26, fig. 5–8) is closed (counterclockwise).

(2) Disconnect the quick-disconnect couplings on the hoses (11) from the adapters (4).

(3) Disconnect the quick-disconnect coupling on the hose assembly (11) from the high-pressure valve (26).

(4) Holding the pressure regulator (19) with one hand, loosen the hose clamp (21) and remove the regulator including the attached parts.

(5) Remove the rupture disk assembly (13) including the preformed packing (6) from the manifold (17).

(6) If required to replace the manifold perform the following steps.

(*a*) Disconnect both hose assemblies (11) from the manifold.

(*b*) Remove nipples (16) and preformed packing (3).

(*c*) Loosen nut (18) and remove manifold (17) and preformed packing (6).

b. Assembly.

(1) If the manifold was removed perform the following steps.

(*a*) Screw a nut (18) loosely on the manifold (17).

(*b*) Install a preformed packing (6) on the threaded portion of the manifold (17).

(*c*) Screw the manifold to the side of the pressure regulator (19). Position the manifold as shown in figure 5–8 and tighten the nut (18) against the regulator valve body.

(*d*) Install a preformed packing (3) on the nipple (16). Tighten the nipple.

(*e*) Connect both hose assemblies (11) to the nipples (16) on top of the manifold.

(2) Install a preformed packing (6) on the threaded portion of the rupture disk assembly.

(3) Screw the rupture disk assembly on the manifold and tighten.

(4) Slide the pressure regulator (19) into the opening in the hose clamps (21). Tighten the hose clamps.

(5) Connect the quick-disconnect coupling on the hose assembly (11) to the adapter (4).

(6) Connect the quick-disconnect coupling on the hose assembly (11) to the high-pressure valve (26).

5–15. Pressure Regulator

Direct support maintenance personnel are authorized to replace the pressure regulator (19, fig. 5–8) and hose clamps (21).

a. Removal.

(1) Perform the operations in paragraph 14*a*(1) to (4) inclusive.

(2) Disconnect the hose (11) from the bottom of the pressure regulator (19) and remove nipple (16) and preformed packing (3) connected to the bottom of the pressure regulator.

(3) Remove pressure regulator (19) from manifold and rupture disk.

(4) Remove hose clamps (21).

b. Assembly.

(1) Install a preformed packing (3) on the nipple (16).

(2) Connect the nipple (16) to the bottom of regulator valve (19) and tighten the nipple.

(3) Connect the hose (11) to the nipple (16) and tighten.

(4) Install hose clamps (21).

(5) Connect pressure regulator (19) to manifold and rupture disk.

(6) Install nipple (16) and preformed packing (3).

(7) Perform the operations in paragraph -14*b*(4) through (6).

5–16. Nameplate

Direct support maintenance personnel are authorized to replace the nameplate.

a. Removal consists of removing screws (23 and 27, fig. 5–8) and nameplate (22).

b. Installation consists of attaching the nameplate (22) to the fuel tank with two screws (23 and 27).

5–17. Catch Assembly

Direct support maintenance personnel are authorized to replace the catch assembly.

a. Removal consists of removing screws (14, fig. 5–8) and catch assembly (15).

b. Installation consists of attaching the catch assembly (15) to the fuel tank with screws (14).

5–18. High–Pressure Sphere-Spring and Bushing

Direct support maintenance personnel are authorized to replace the spring and rubber bushing on the high-pressure sphere.

a. Removal.

(1) Close the valve by turning the knob (12, fig. 1–5) clockwise.

(2) Disconnect the quick-disconnect coupling half (11).

(3) Pull back the catch (10). Rotate the high-pressure sphere counterclockwise until the red triangle marker on the sphere lines up with the red triangle on the fuel tank.

(4) Remove the high-pressure sphere.

(5) Remove the flat spring (24, fig. 5–8) and rubber bushing (25).

b. Installation.

(1) Place the rubber bushing (25) in place on the sphere.

(2) Place the concave side of the spring (24) over the bushing. Press the spring over the bushing and seat it properly.

(3) Pull back the catch. Aline the red triangle on the sphere with the red triangle on the fuel tank. Rotate the sphere clockwise and release the catch.

(4) Connect the quick-disconnect coupling that is on the hose to the adapter on the sphere.

NOTE

Releasing the catch will lock the sphere in place.

5–19. Fuel Tank Frame and Protective Cover

Direct support maintenance personnel are authorized to replace the frame, protective cover, and attaching parts.

a. Inspection. Visually inspect the hardware and frame (1, fig. 4–2) for possible damage and missing parts.

b. Removal.

(1) Remove the protective cover (2).

(2) Remove the attaching hardware and frame (1).

c. Installation.

(1) Install the frame (1) to the fuel tank with attaching hardware.

(2) Install the protective cover (2).

5–20. Fuel Tank

Direct support maintenance personnel are authorized to replace the fuel tanks.

a. Removal.

(1) Check to see that the knob on the high-pressure valve (26, fig. 5-8) is closed (clockwise).

(2) Disconnect the quick-disconnect coupling on the hoses (11) from the adapter (4).

(3) Disconnect the quick-disconnect coupling on the hose (11) from the high-pressure valve (26).

(4) Remove back pad (7).

(5) Disengage the catch (15) and remove the high-pressure sphere (28).

(6) Remove both filler caps (1).

(7) Remove pressure cap (32) and nipple (29).

(8) Remove protective cover (3, fig. 1-7).

(9) Holding the pressure regulator (19, fig. 5-8) with one hand, loosen the hose clamps (21) and remove the pressure regulator with attaching parts.

(10) Remove frame (1, fig. 1-7) and attaching hardware.

b. Installation.

(1) Connect the frame (1) to the fuel tanks with attaching hardware.

(2) Apply antiseize compound to the threads on the nipple (29, fig. 5-8). Screw the nipple into the fuel tank and tighten.

(3) Install the pressure cap (32) on the nipple.

(4) Install both filler caps (1).

(5) Locate the red triangle on the high-pressure sphere (28) with the red triangle on the short fuel tank.

(6) Pull and disengage the catch (15) and install the high-pressure sphere. Release the catch.

(7) Slide the pressure regulator (19) into the opening in the hose clamps (21). Tighten the hose clamp.

(8) Connect the quick-disconnect coupling on the hose (11) to the adapter (4).

(9) Connect the quick-disconnect coupling on the hose (11) to the high-pressure valve (26).

(10) Connect the back pad (7, fig. 1-7) to the frame.

(11) Install protective cover (3).

Section V. SPHERE CARRIER (deleted)

5-21. Cam Bolt and Fastener (deleted)

5-22. Frame (deleted)

5-23. Cover (deleted)

Figure 5-9. Sphere carrier (deleted).

CHAPTER 6
GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. TESTING AND SERVICING

6-1. Hydrostatic and Volumetric Testing

General support maintenance personnel will perform the hydrostatic and volumetric testing (TM 3-1040-251-15) on the following equipment at the intervals specified. An aluminum strip is attached to the item showing the date the testing was performed.

a. Perform the hydrostatic test on the M8 hose assembly upon initial issue of the hose and at six month intervals through the service life of the hose. When the hose is being issued, the date (month and year) is to be stamped on both couplings directly under the date of manufacturer. This is the beginning of the service life for the hose.

b. Perform the volumetric test on the fuel tanks at least once every 4 years.

c. Perform the volumetric test on the air pressure tank at least once every 4 years.

6-2. Storage Life and Service Life — M8 Hose

a. Storage Life.

WARNING

Do not use the hose if the 5-year storage life is exhausted.

Storage life is 5 years from the date of manufacture which is stamped on the coupling at each end of the hoses.

b. Service Life.

WARNING

Do not use the hose if the 2-year service life is exhausted.

Service life is 2 years from the date that the hose is initially put into use. This date will be stamped on the coupling directly under the date of manufacture by general support maintenance personnel upon issue of the hose. The service life is coded as follows: The first 12 letters of the alphabet represent the months of the year and a number represents the year (i.e., B3 is February 1973 and C4 is March 1974.

Section II. GUN

6-3. Needle Valve Assembly and Inlet Body

General support maintenance personnel are authorized to replace the inlet body and parts that make up the needle valve assembly.

a. Description and Function. The needle valve assembly (2, fig. 6-1) meters the flow of fuel from the barrel assembly (1). The rear end of the needle valve assembly (2) is supported in a sleeve bearing (8), that fits into the inlet body (10). Performed packings (7) are provided to prevent fuel from leaking into the valve grip assembly.

b. Disassembly.

(1) Screw the valve retractor (12) as far as it will go on the threads of the needle valve assembly (2).

(2) Secure the inlet body (10), in a vise, in such a way that the inlet body will not be damaged.

(3) Using a wrench, screw the barrel assembly (1) off of the inlet body (10). Remove the barrel assembly.

(4) Position the point of the needle valve assembly (fig. 6-2) on a cushioned surface to avoid damage to the needle valve.

WARNING

Slowly release the pressure on the inlet body to prevent the inlet body and springsunder tension from flying off the needle valve.

(5) Push down on the inlet body with one hand. Hold the inlet body under tension, and unscrew the valve retractor from the needle valve. Carefully and slowly release the pressure on the inlet body.

(6) Remove the inlet body (10, fig. 6-1), sealing gasket (9), sleeve bearing (8), preformed packing (7), packing retainer (6), springs (4) and (5), and washer (3).

c. Inspection.

(1) Check the needle valve parts removed in *b* above for possible damage and wear.

(2) Check especially the sealing gasket (9), preformed packings (7), and packing retainer (6) for damage and deterioration.

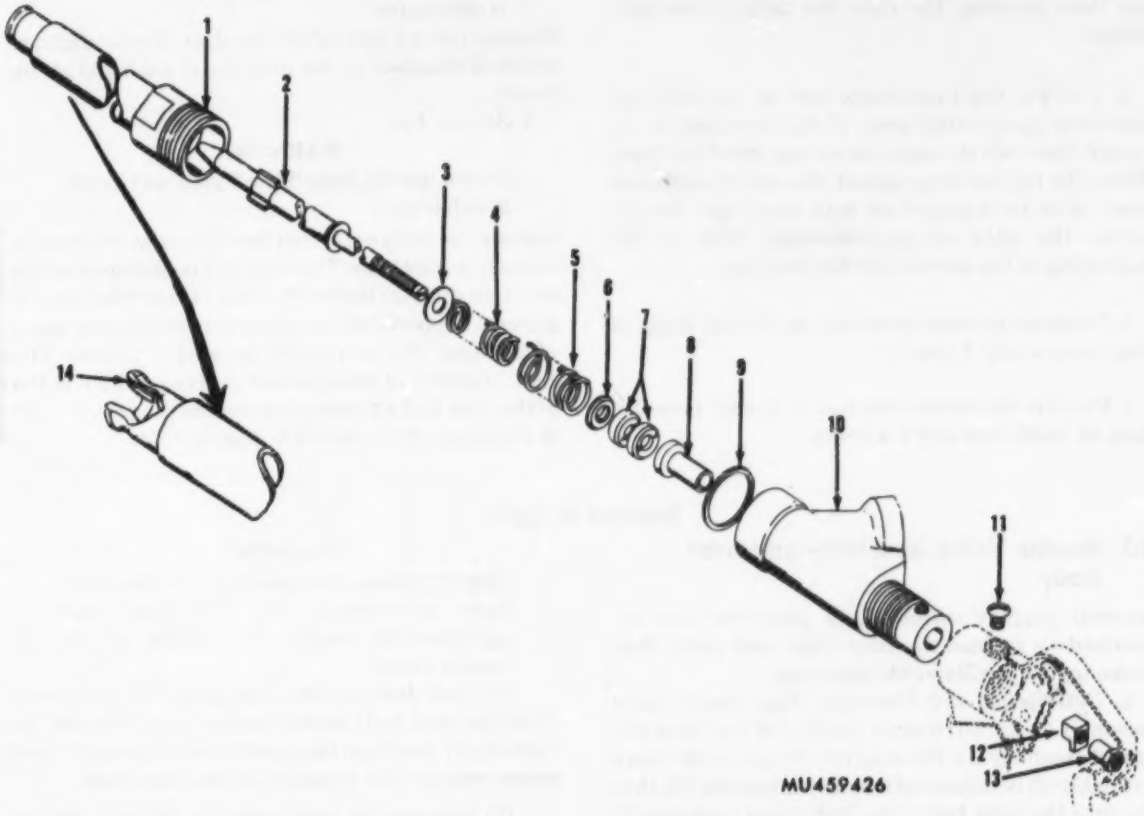
d. Servicing. Servicing consists of cleaning all the parts of the needle valve assembly of any foreign accumulation.

e. Assembly.

(1) With the chamfer side of the packing retainer (6) facing away from the needle valve, place the packing retainer (6) on the needle valve.

(2) With the open side of the V on the preformed packing (7) facing the chamfer on the packing retainer (6) place the preformed packings on the needle valve assembly (2). Place the sleeve bearing (8) on the needle valve assembly (2).

(3) Push the needle valve assembly (2) with the installed parts into the inlet body (10) until the installed parts are seated properly.



1 Barrel assembly
2 Needle valve assembly
3 Washer
4 Valve inner spring
5 Valve outer spring
6 Packing retainer
7 Preformed packings
8 Sleeve bearing
9 Sealing gasket
10 Inlet body
11 Screw
12 Valve retractor
13 Sleeve nut
14 Atomizer hole

Figure 6-1. Barrel-and-inlet body, exploded view.

Figure 6-2. Removing valve retractor.

NOTE

If the packing retainer or preformed packing should come out when the needle valve assembly is withdrawn, it may be necessary to hold the parts in place with a screwdriver, when withdrawing the needle valve assembly.

(4) Withdraw the needle valve assembly from the inlet body by turning it and pulling it slowly out of the inlet body (10).

(5) Place washer (3), inner spring (4), and outer spring (5) on the needle valve and insert these parts as a unit into the inlet body.

(6) Compress these parts by placing the needle valve assembly (2) on a cushioned surface and pushing down on the inlet body (10) permitting the needle valve assembly to come through the inlet body (fig. 6-2). Screw the valve retractor onto the threaded end of the needle valve as far as it can be turned with the fingers.

(7) Install a new sealing gasket (9, fig. 6-1).

(8) Slide the barrel assembly (1) over the needle valve assembly and screw it into the inlet body.

(9) Tighten the barrel assembly (1).

(10) Unscrew the valve retractor (12) until it is at least two-thirds off of the needle valve threads.

(11) Check system for leaks (para 5-3).

6-4. Barrel Assembly

General support maintenance personnel are authorized to replace the barrel assembly.

a. Removal.

(1) Screw the valve retractor (12, fig. 6-1) as far as it will go on the threads of the needle valve assembly (2).

(2) Secure the inlet body (10) in a vise, in such a way that the inlet body will not be damaged.

(3) Using a wrench, screw the barrel assembly (1) off the inlet body (10).

b. Inspection.

(1) Inspect the barrel (1) for possible damage.

(2) Check especially the threads on the barrel for damage.

(3) Clean the exposed end of the needle valve assembly (2) of foreign material.

(4) Clean the atomizer hole (14) in the needle valve assembly (2), if required.

c. Assembly.

(1) Slide the barrel assembly (1) over the needle valve assembly and screw it into the inlet body.

(2) Tighten the barrel (1).

(3) Unscrew the valve retractor (12) until it is at least two-thirds off of the needle valve threads.

6-5. Needle Valve and Valve Barrel Lapping Procedure

a. Lapping the needle valve assembly (2, fig. 6-1) into the nozzle of the barrel assembly (1) is a general support maintenance responsibility.

b. Separate the needle valve and barrel assembly as an assembled unit from the valve section.

c. Overcome the spring tension and withdraw the needle valve assembly into the barrel assembly. Apply a valve-grinding compound (lapping compound) between the nozzle seat and the needle point contacting surfaces.

d. Permit the spring to force the end of the needle against the seat inside the nozzle.

e. Turn the needle valve until the contacting surfaces of the needle and seat make a tight connection when seated.

f. Reassemble and lubricate the gun group and test-fire the weapon.

Section III. TANK PRESSURE SECTION

WARNING

Release the air in the air pressure system before attempting any maintenance or modification to the pressure system.

6-6. Pressure Regulator

General support maintenance personnel are authorized to replace the parts that make up the pressure regulator.

a. Removal.

(1) Check to see that the knob on the high-pressure valve (26, fig. 5-8) is closed (clockwise).

(2) Disconnect the quick-disconnect coupling on the hoses (11) from the adapter (4).

(3) Disconnect the quick-disconnect coupling on the hose assembly (11) from the high-pressure valve (26).

(4) Holding the regulator valve (19) with one hand, loosen the hose clamp (21) and remove the regulator valve including the attaching parts.

(5) Loosen setscrew (4, fig. 6-3).

(6) Using a spanner wrench, remove the cover assembly (2) from the regulator body (3).

(7) Remove disks (5), spring (6), and piston assembly (7).

(8) Remove preformed packing (8) and stem (9).

(9) Remove screws (10). Remove guide assembly (11), washer (12), and ring (13).

(10) Remove preformed packing (20), support (21), ball (23), and preformed packing (22).

(11) Remove dust cover (24).

(12) Unscrew the relief valve (25).

(13) Remove retainer (14), washers (15), and filters (16 and 17).

(14) Remove spring (18) and seat (19).

b. Inspection.

(1) Check the parts removed in *a* above.

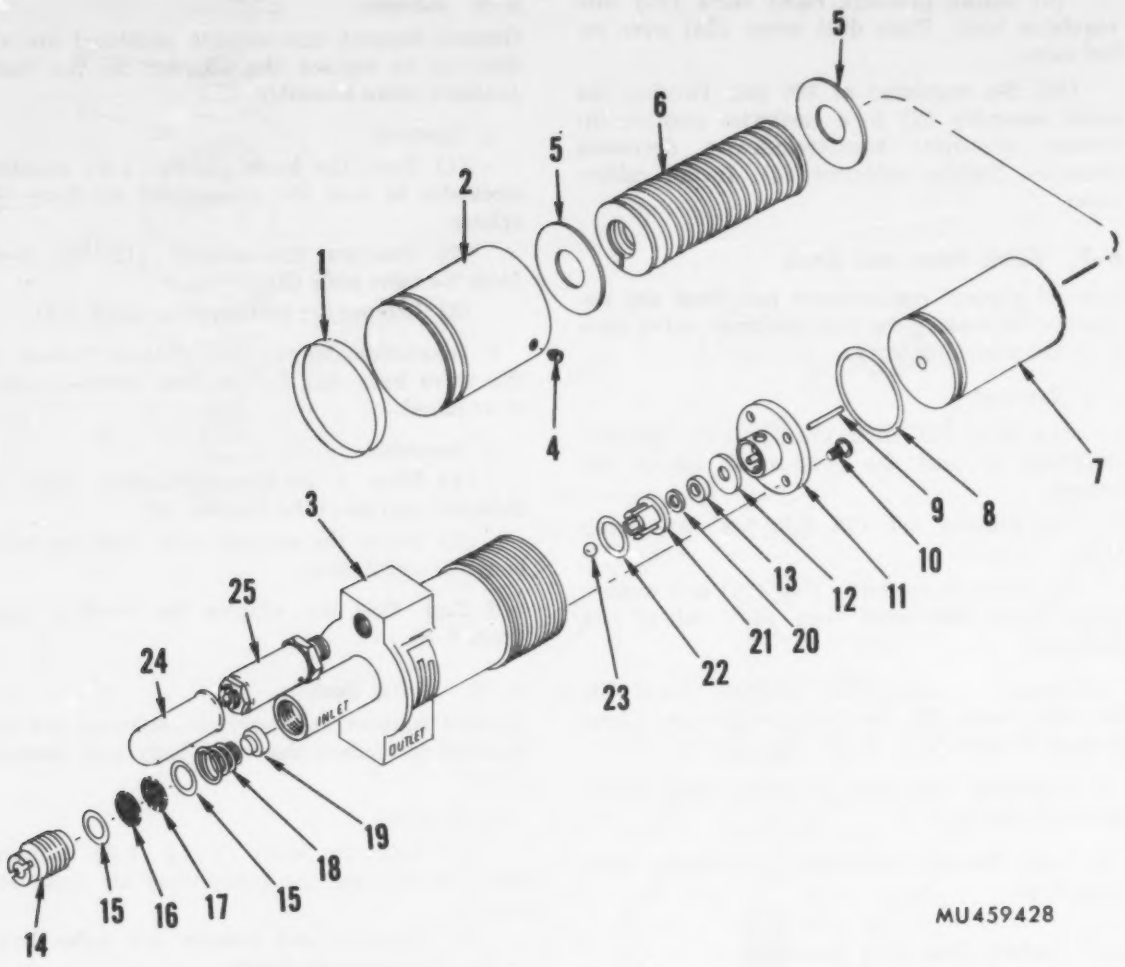
(2) Check especially the preformed packings (8, 20 and 22) for damage and deterioration.

c. Servicing. Servicing consists of cleaning all the parts of any foreign accumulation.

d. Assembly.

(1) Install preformed packing (22) on the support (21). Install seat (19). Install ring (13) so flat surface faces the seat (19). Install assembled items in the regulator body (3).

(2) Install washer (12) in the regulator body. Install guide assembly (11). Position small hole in guide assembly (11) over small hole on



1	Regulator cover	10	Screw	19	Seat
2	Cover assembly	11	Guide assembly	20	Preformed packing
3	Body	12	Washer	21	Support
4	Setscrew	13	Ring	22	Preformed packing
5	Disks	14	Retainer	23	Ball
6	Spring	15	Washers	24	Dust cover
7	Piston assembly	16	Filter fine	25	Relief valve
8	Preformed packing	17	Filter coarse		
9	Stem	18	Spring		

Figure 6-3. Pressure regulator, exploded view.

outlet side of regulator body. Install four machine screws (10) and tighten.

(3) Insert ball (23) into inlet port of regulator body (3).

(4) Insert retainer (14) and spring (18) into inlet port of regulator body (3).

(5) Insert washer (15), fine filter (16), coarse filter (17), and washer (15). Screw retainer (14) into inlet port of body regulator using offset screwdriver.

(6) Assemble stem (9) into guide assembly (11) so that cupped end is toward inlet port.

(7) Place preformed packing (8) on piston assembly (7) and insert piston assembly into regulator body.

(8) Install disk (5) and regulator spring (6) into piston assembly (7). Install disk (5) on top of regulator spring (6). Screw cover assembly (2) onto the regulator body (3) so that no threads are visible.

(9) Install pressure relief valve (25) into regulator body. Place dust cover (24) over relief valve.

(10) Set regulator at 300 psi. Turning the cover assembly (2) in a clockwise position increases pressure; counterclockwise decreases pressure. Tighten setscrew (4). Install rubber cover.

6-7. Valve Stem and Knob

General support maintenance personnel are authorized to replace the high-pressure valve stem knob and attaching parts.

a. Removal.

(1) Turn the knob (7, fig. 1-6) counterclockwise to vent the pressurized air in the sphere.

(2) Remove nut (18, fig. 6-4) and knob (17).

(3) Remove retaining ring (16) and washer (15). Screw the valve stem (14) out of the valve body (2).

b. Inspection. Check the internal threads in the valve body (2) for possible damage. Clean threads if required.

c. Assembly. Assemble in reverse order of removal (*a* above).

d. Test. Test the valve stem for possible leaks (para 5-3).

6-8. Safety Disk Plug Assembly

General support maintenance personnel are authorized to replace the safety disk plug assembly.

a. Removal.

(1) Turn the knob (7, fig. 1-6) counterclockwise to vent the pressurized air from the sphere.

(2) Unscrew and remove the safety disk plug assembly (1, fig. 6-4) from the valve body (2).

b. Inspection. Inspect the internal threads in the valve body (2) for possible damage. Clean threads if required.

c. Assembly. Assemble in reverse order of removal (*a* above).

d. Test. Test the safety disk plug assembly for possible leaks (para 5-3).

6-9. Adapter

General support maintenance personnel are authorized to replace the adapter on the high-pressure valve assembly.

a. Removal.

(1) Turn the knob (7, fig. 1-6) counterclockwise to vent the pressurized air from the sphere.

(2) Unscrew the adapter (12, fig. 6-4) from the valve body (2).

(3) Remove the preformed packing (13).

b. Inspection. Inspect the internal threads in the valve body (2) for possible damage. Clean if required.

c. Assembly.

(1) Place a preformed packing (13) on threaded portion of the adapter (12).

(2) Screw the adapter (12) into the valve body (2) and tighten.

d. Test. Test the adapter for possible leaks (para 5-3).

6-10. Valve Body

General support maintenance personnel are authorized to replace the valve body and internal parts.

a. Removal.

(1) Turn the knob (7, fig. 1-6) counterclockwise to vent the pressurized air from the sphere.

(2) Unscrew and remove the valve body (2, fig. 6-4) from the sphere.

(3) Unscrew the bushing (10) from the valve body (2).

(4) Remove the spring (9) and check valve (8).

(5) Unscrew the valve seat retainer (7) valve seat (6), sleeve spacer (5), preformed packing (4), and washer (3).

(6) Remove the preformed packing (11) from the opening in the sphere.

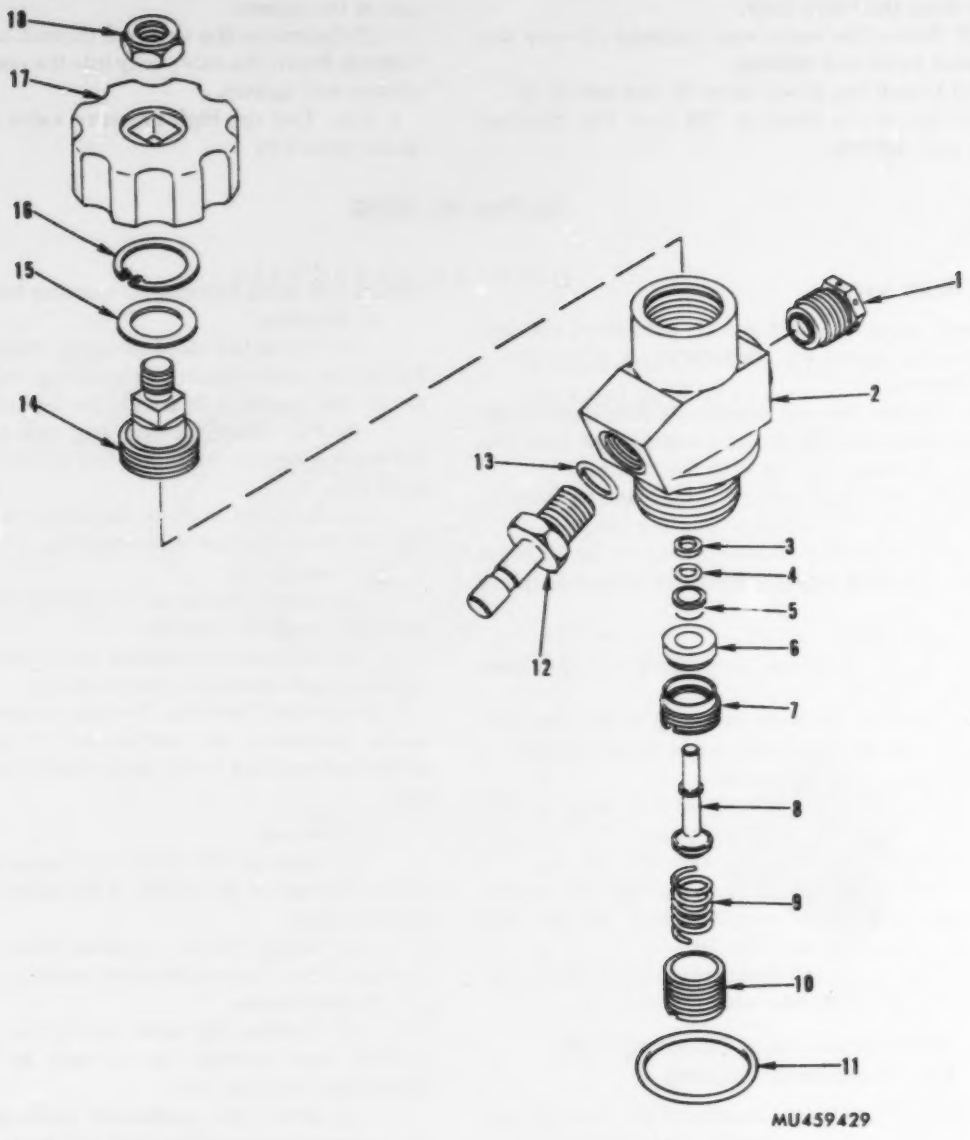
b. Inspection.

(1) Check the internal threads in the sphere for possible damage. Clean threads if required.

(2) Check the threads on the valve body (2) for possible damage. Clean threads if required.

c. Assembly.

(1) Install the washer (3), preformed packing (4), and sleeve spacer (5).



1 Safety disk plug assembly
2 Valve body
3 Washer
4 Preformed packing
5 Sleeve spacer
6 Valve seat
7 Valve seat retainer
8 Check valve
9 Spring
10 Bushing
11 Preformed packing
12 Adapter
13 Preformed packing
14 Valve stem
15 Washer
16 Retaining ring
17 Knob
18 Nut

Figure 6-4. High-pressure valve assembly, exploded view.

(2) Install the valve seat (6) with chamfered edge away from the valve body.

(3) Screw the valve seat retainer (7) over the installed parts and tighten.

(4) Install the check valve (8) and spring (9).

(5) Screw the bushing (10) over the installed parts and tighten.

(6) Install a preformed packing (11) into the open end of the sphere.

(7) Lubricate the external threads on the valve body (2). Screw the valve body into the opening in the sphere and tighten.

c. Test. Test the high pressure valve for possible leaks (para 5-3).

Section IV. HOSE

6-11. Fuel hose

General support maintenance personnel are authorized to replace the M8 hose.

a. Removal.

(1) Rotate the ball depressing ring (step C, fig. 2-1), on the quick-disconnect coupling half until the slot in the ring is in line with the lock pin.

(2) Pull the depressing ring back and remove the hose from the fuel delivery coupling (step D).

(3) Disconnect the hose coupling (10, fig. 1-3) from the M7 gun and remove quick-disconnect coupling half (1).

b. Installation.

(1) Apply antiseize compound on the hose coupling threads.

(2) Connect the hose coupling to the gun inlet body and install quick-disconnect coupling half.

(3) Tighten the couplings.

(4) Rotate the ball depressing ring on the quick-disconnect coupling half (step C, fig. 2-1) until the slot in the ring is in line with the lock pin.

(5) Depress the ball depressing ring and connect the quick-disconnect coupling half to the fuel delivery tank coupling (step D).

(6) Rotate the ball depressing ring until the slot in the ring is not in line with the lock pin.

6-12. Quick-Disconnect Coupling Half and Preformed Packing

a. Quick-Disconnect Coupling Half. General support maintenance personnel are authorized to replace the quick-disconnect coupling half.

(1) *Removal.*

(a) Rotate the ball depressing ring (step C, fig. 2-1) on the quick-disconnect coupling half until the slot in the ring is in line with the lock pin.

(b) Pull the depressing ring back and remove the hose assembly from the fuel delivery coupling (step D).

(c) Remove the quick-disconnect coupling half (fig. 6-5) from the fuel hose coupling.

(2) *Installation.*

(a) Apply Antiseize compound on the hose assembly coupling threads.

(b) Connect and tighten the quick-disconnect coupling half threads to the coupling.

b. Preformed Packing. General support maintenance personnel are authorized to replace the preformed packing in the quick-disconnect coupling half.

(1) *Removal.*

(a) Remove the preformed packing (fig. 6-5) that is located on the inside of the quick-disconnect coupling half.

(b) Clean rubber particles from the inner surface of the quick-disconnect coupling half.

(2) *Installation.*

(a) Position the open end of the preformed packing face towards the threads in the quick-disconnect coupling half.

(b) Slide the preformed packing into the quick-disconnect coupling half and seal it properly.

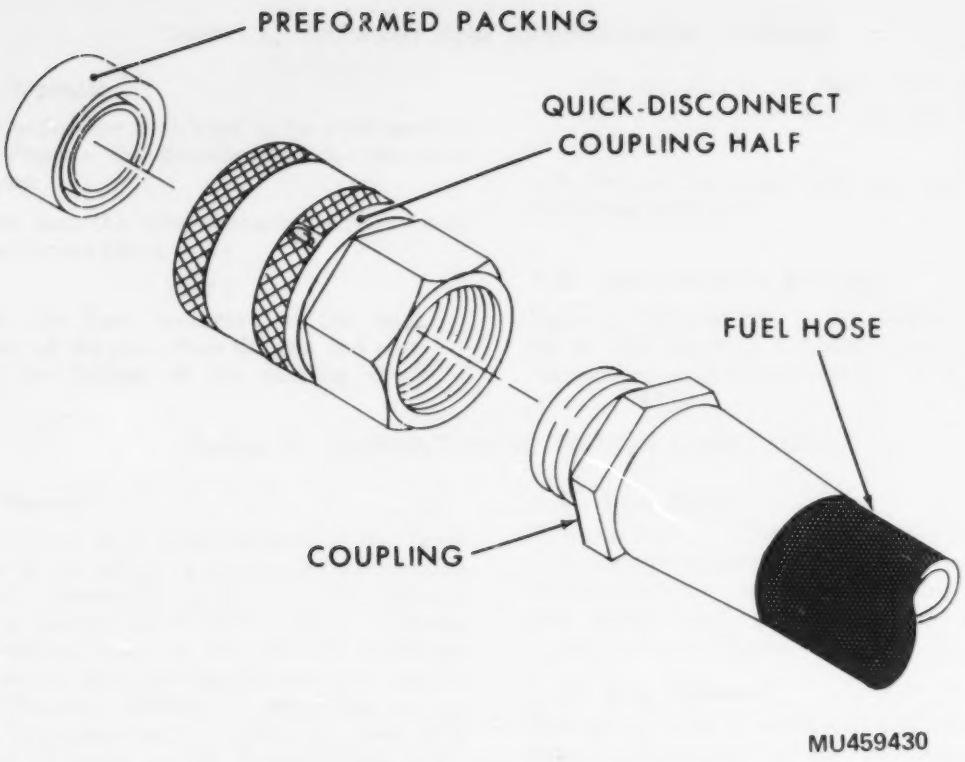


Figure 6-5. Hose Coupling, exploded view.

CHAPTER 7

SHIPMENT, ADMINISTRATIVE STORAGE, AND DESTRUCTION TO PREVENT ENEMY USE

Section I. SHIPMENT AND ADMINISTRATIVE STORAGE

7-1. Shipment

The flamethrower is shipped in its wood packing chest. Prepare the flamethrower for shipment as follows:

a. See that the after-operation services have been performed (para 4-17).

NOTE

Let the hose connected to the inlet body of the gun. Place the gun and hose in the bottom of the packing chest with the gun to the front, hose to the left. Place divider with the long notch to the right.

b. Seal all openings with masking tape and repack flamethrower.

7-2. Administrative Storage

Store the flamethrower in the packing chest. Refer to TM 740-90-1 for administrative storage instructions on this equipment.

Section II. DESTRUCTION TO PREVENT ENEMY USE

7-3. General

When capture by or abandonment of the flamethrower to an enemy is imminent, the responsible unit commander must make the decision either to destroy the flamethrower or to render it inoperative. Based on this decision, orders are issued which cover the desired extent of demolition. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all units and all corresponding repair parts.

7-4. Gun Group

Demolish gun, valves, and tubes with a sledgehammer, ax, or other means.

7-5. Tank Group

Fire small-arms bullets through the fuel tanks, high-pressure sphere, and pressure regulator. If necessary to fire pointblank into the high-pressure sphere, first open the high-pressure valve to release any air pressure.

7-6. Hose Group

Destroy the hose by cutting it with an ax or by smashing fittings with a heavy implement.

7-7. Ignition Cylinders

Destroy ignition cylinders by burning them. Personnel should stay several yards away from the fire because the ignition cylinders ignite with a slight detonation.

APPENDIX A

REFERENCES

FM 20-23	Combat Flame Operations.
TM 3-366	Flame Fuels.
TM 3-1040-203-12	Operator and Organizational Maintenance Manual: Compressor, Reciprocating, Power-driven, 7 CFM, M1A1.
TM 3-1040-210-12	Operator and Organizational Maintenance Manual: Compressor Unit, Reciprocating, Power-driven, Flamethrower, 3 1/2 CFM, AN-M4, FSN 1040-592-8500.
TM 3-1040-219-12	Operator's and Organizational Maintenance Manual: Service Unit, Flamethrower, Truck Mounted, M4A2 (D) and Service Unit, Flamethrower, Truck-Mounted, M4A2 (IR) (Davey) FSN 1040-740-1152, (Ingersoll-Rand) FSN 1040-740-1150.
TM 3-1040-221-12	Operator's and Organizational Maintenance Manual: Service Kit, Portable Flamethrower-Riot Control Agent Disperser, M27, FSN 1040-736-3230.
TM 3-1040-224-12	Operator's and Organizational Maintenance Manual: Compressor, Reciprocating, Power-driven, Flamethrower, 3 1/2 CFM, AN-M4/B.
TM 3-1040-244-12	Operator's and Organizational Maintenance Manual: Compressor, Reciprocating, Power-driven, Flamethrower, 3 1/2 CFM, AN-M4/C.
TM 3-1040-251-15	Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Test Set, Flamethrower-Riot Control Agent Disperser, Hydrostatic and Volumetric, 6,000 PSI, M5.
TM 3-1040-256-12	Operator's and Organizational Maintenance Manual: Service Unit, Flamethrower, Tracked-Vehicle Mounted, XM45E1.
TM 3-1040-257-20P	Organizational Maintenance Repair Parts and Special Tools Lists: Flamethrower, Portable M9E1-7.
TM 3-1040-257-35P	Direct Support, General Support, and Depot Maintenance Repair Parts and Special Tools Lists: Flamethrower, Portable M9E1-7.
TM 3-1040-263-12	Operator's and Organizational Maintenance Manual: Compressor, Reciprocating, Power-driven, Flamethrower, 3 1/2 cfm, AN-M4D.
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 740-90-1	Administrative Storage of Equipment.

APPENDIX B
BASIC ISSUE ITEMS LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED LIST

Section I. INTRODUCTION

1. Scope

This appendix lists items which accompany the Flame Thrower, Portable M9A1-7 or are required for installation, operation, or operator's maintenance.

2. General

This Basic Issue items, Items troop installed or authorized list is divided into the following sections:

a. Section II—Basic Issue Items. Not applicable.

b. Section III—Items Troop Installed or Authorized List. A list, in alphabetical sequence, of items which, at the discretion of the unit commander, may accompany the end item, but should not be turned in with the end item.

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

(1) NATIONAL STOCK NUMBER (NSN)	(2) DESCRIPTION Part Number & FSCM / Usable on Code	(3) U/M	(4) QTY AUTH
1040-00-809-0655	SPHERE, HIGH PRESSURE E81-1-9664 81361	EA	2

APPENDIX C

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

C-1. General

The maintenance allocation chart (sec II) lists the authorized maintenance functions assigned the maintenance categories for maintenance of the M9A1-7 portable flame thrower. This chart is to be used by all levels of maintenance to insure complete support of the equipment.

C-2. Maintenance Functions

Maintenance functions authorized are limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean, preserve, drain, paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. The act of substituting a serviceable like-type part, subassembly, module (component or assembly) in a manner to allow the proper functioning of an equipment/system.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module/component/assembly, end item or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (e.g., DMWR) in pertinent technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipment/components.

l. Symbols. The uppercase letter placed in the appropriate column indicates the lowest level at which that particular maintenance function is to be performed.

C–3. Explanation of Format

Purpose and use of the format are as follows:

a. Group Number, column 1. Column 1 lists group numbers, the purpose of which is to match components, assemblies, subassemblies, and modules with the next higher assembly.

b. Functional Group, column 2. Column 2 lists the next higher assembly group and the item names of components, assemblies, subassemblies, and modules within the group for which maintenance is authorized.

c. Maintenance Function, column 3. Column 3 lists the eleven maintenance functions defined in C–2. Each maintenance function required for an item shall be specified by the symbol among those listed in *d* which indicates the level responsible for the required maintenance. Under this symbol, there shall be listed an appropriate work measurement time value as indicated in *e*.

d. Use of Symbols. The following are to prescribe work function responsibility:

Symbol	Explanation
C	Operator/crew maintenance
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

e. Work Measurement Time. The active repair time required to perform the maintenance function is included directly below the symbol identifying the category of maintenance. Active repair time is the average aggregate time required to restore an item (subassembly, assembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, fault isolation/diagnostic time, and QA/QC time in addition to the time required to perform specific maintenance functions identified for the tasks authorized in the maintenance allocation chart. This time is expressed in man-hours and carried to one decimal place (tenths of hours).

f. Tools and Equipment, column 4. Not applicable.

g. Remarks, column 5. Self-explanatory.

Section II. MAINTENANCE ALLOCATION CHART FOR FLAMETHROWER, PORTABLE, M9A1-7

(1) GROUP NUMBER	(2) FUNCTIONAL COMPONENT ASSEMBLY NOMENCLATURE	(3) MAINTENANCE FUNCTION											(4) TOOLS & EQUIP-MENT	(5) REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHALL	REBUILD		
100	GROUP 100-GUN													
	Gun, portable	C	H	F	F				F	F				
	flamethrower, M7	0.1	0.50	0.30	0.2				0.2	0.1				
200	GROUP 200-HOSE													
	Hose, Fuel	0	H						H	H				
		0.1	0.2						0.2	0.1				
300	GROUP 300-TANK FUEL AND PRESSURE SECTION													
	Cap filler Assembly	0							0	F				
		0.1							0.1	0.2				
	Tank assembly,	0	H	C					F	H				
	fuel	0.1	0.5	0.5					0.3	0.4				
	Rupture disc	0							F	F				
	assembly	0.1							0.1	0.1				
	Manifold	0							F	F				
		0.1							0.3	0.2				
	Pressure cap	0							0	F				
		0.1							0.1	0.1				
	Valve, regulating,	0	F		H				F	H				
	fluid pressure	0.1	0.2		0.3				0.4	0.5				
	Valve assembly,		H						H	H				
	high pressure		0.3						0.2	0.4				
	Sphere, high													
	pressure assembly		H	0					0	H				
			0.5	0.2					0.1	0.5				
	Coupling half,	0							H					
	quick disconnect	0.1							0.2					
	CARRIER SECTION													
	Frame assembly	0							F	H				
		0.1							0.3	0.5				
	Back pad assembly	0							0	H				
		0.1							0.2	0.3				
	Strap, shoulder				C				0					
					0.1				0.1					
	Strap, waist				C				0					
					0.1				0.1					
	Holster assembly	0							0					
		0.1							0.1					

MAINTENANCE ALLOCATION CHART
FOR
Flamethrower, Portable, M9A1-7

(1) GROUP/INDEX NUMBER	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTION											(4) TOOLS AND EQUIPMENT	(5) REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	Strap, waist				C 0.1				O 0.1					
	Holster assembly	O 0.1							O 0.1					
400	GROUP 400-CARRIER													
	Frame assembly	O 0.1							F 0.2	H 0.3				
	Cover assembly	O 0.1							F 0.1	H 0.2				
	Strap, shoulder	O 0.1			C 0.1				O 0.1					
	Strap, quick release	O 0.1							O 0.1					
	Strap, waist	O 0.1			C 0.1				O 0.1					
	Strap, webbing	O 0.1			C 0.1				O 0.1					

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By Order of the Secretary of the Army:

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